POLICY RESEARCH WORKING PAPER 1845

Employment, Labor Markets, and Poverty in Ghana

A Study of Changes during Economic Decline and Recovery

Sudharshan Canagarajah
Dipak Mazumdar

An awareness on the part of policymakers that the formal sector is only a small part of Ghana's labor market is a necessary precondition of appropriate employment policy. If the government is unwilling to reduce public employment or to alter public spending to invest more in agriculture, and infrastructure employment conditions will worsen, high public-wage policy will fuel inflationary pressures, reducing such investment even further. An active labor policy and employment creation is necessary for sustainable poverty reduction.

The World Bank
Africa Region
Human Development Technical Family
November 1997

Summary findings

The slowdown and possible reversal in the rural-to-urban flow of labor in Ghana is symptomatic of a basic shortcoming in the country's economic recovery: the inadequate growth of the productive sector in the nonagricultural economy. The rate of growth of GDP has been adequate but much of the growth has been fueled and led by the services sector, which (at more than 46 percent) has surpassed agriculture as the main contributor to GDP.

In some way growth in the services sector has been positive, but arguably it is a once-for-all adjustment to recover that cannot be sustained at this growth rate without commensurate growth in both agricultural and nonagricultural production.

Evidently, stabilization and liberalization measures have not been sufficient to put the industrial sector on a path of sustained growth. There is too little skilled labor in Ghana, and demand for industrial goods has been weak, in part because the cost of credit is high and savings are too low for inefficient, state-run enterprises to buy the equipment they need.

Returns to higher (especially university) education are high in Ghana, largely because of high wages for government services. Because of inadequate technical and vocational education, returns to secondary education are low.

Employment trends have mirrored the deficiency in output growth. Every year since 1987, industrial employment has fallen. The growing labor force, which agriculture could not absorb productively, has spilled over into service activities and the informal sector. Ghana's large informal sector is symptomatic of an economy with low growth potential.

In the medium term, the surest way to absorb labor would be to increase investment in the agriculture sector. And the only way to increase investment in that sector is to change the composition in public spending. As long as the public sector wage bill remains a sizable part of government expenditure, an increase in wage levels not compensated by reduction in employment will create strains in the budgetary balance and will defeat the most important instrument of increasing the growth rate of employment — higher levels of public investment in agriculture.

It is possible that a vicious circle is complete. Higher wages in the public sector might be necessary to increase efficiency, without which productive public investment is not possible. But if the government is not willing or able to reduce public employment, and is further unable to alter the composition of expenditure to provide more finance for agriculture-related public investment, a high wage public policy will merely fuel inflationary pressures reducing the real investment ratio even further. The only way out of this vicious circle, if it exists, is a larger infusion of foreign and private investment than has been seen so far, supplemented by corrective monetary policy.

This paper — a product of the Human Development Technical Family, Africa Region — is a background paper for World Bank Economic Sector Work on *Ghana: Labor Markets and Poverty*. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Betty Casely-Hayford, room J8-272, telephone 202-473-4672, fax 202-473-8065, Internet address bcasely-hayford@worldbank.org. November 1997. (65 pages)

Employment, Labor Markets and Poverty in Ghana:

A Study of Changes During Economic Decline and Recovery.

Sudharshan Canagarajah
Dipak Mazumdar

This paper is one of a series of background papers undertaken as part of a World Bank Economic and Sector Work (ESW) on *Ghana: Labor Markets and Poverty*. We acknowledge funding from Dutch and Canadian Trust Funds.

TABLE OF CONTENTS

			Pages
SUMMARY			1
1.	Structure of Labor Markets in Ghana		2-5
	1.1	Introduction	2
	1.2	Multiple Occupations	2-4
	1.3	The Impact of Government Policies on the Labor Market	4-5
2.	Economic Policies and Basic Trends in the Economy 5-7		
	2.1	Pre-1983	5-6
	2.2	The Economic Recovery Program (ERP) and After	6-7
	2.3	Recent Shocks	7
3.	The Formal Sector		8-19
	3.1	The Pre-ERP Period	8-9
		3.1.1 Employment	8-9
		3.1.2 Wages	9
	3.2	Post-ERP Developments	10
		3.2.1 The Public Sector	10
		3.2.2 The Private Sector	10
	3.3	Evaluation	11-19
		3.3.1 Is the Size of Employment in the Public Sector too Large?	11-12
		3.3.2 Are Public Sector Wages too High?	12-18
		3.3.3 The Distribution of Earnings	18-19
4.	Firm Size and Wage Levels in Ghana's Manufacturing Sector		20-28
	4.1	Analysis by Teal	20
	4.2	Analysis by Mazumdar	21-23
	4.3	Causes of the Increase in Earnings with Firm Size	23-24
	4.4	Inelastic Supply of Labor	24-25
	4.5	Efficiency Wage	25-26
	4.6	Increasing Returns to Scale and Profit Sharing	26-27

4.7 Informal Sector Activities in Ghana 27-28

5. Education and Earnings 29-36

5.1 Public and Private Sectors 31-32
5.2 Quality of Education 32-33
5.3 Family Background, Private-Public Choice and Returns to Education 33-34
5.4 Trends in Child Labor and Schooling in Ghana 34-36

6. Rural-Urban Earnings Difference 36-49

6.1 The Pre-Crisis Economy 36-37
6.2 The Course of Rural-Urban Earnings Differences during the Economic Decline 38-40
6.3 The Rural-Urban Difference after the Recovery 40-44
6.4 Factors Affecting Rural-Urban Differences in Trends in Income and Poverty 44-49
6.4.1 The Absorption of Labor 45-46
6.4.2 The Formal-Informal Earnings Difference in Urban Ghana 46
6.4.3 Income Growth and Poverty Reduction in the Rural Economy 46-47
6.4.4 Absolute Levels of Poverty in the Rural and Urban Sectors and Labor Migration 47-49

7. Conclusions and Recommendations 49-53

7.1 The Future of Labor Absorption in Ghana 49-53
7.2 An Agenda for Future Research 53

REFERENCES 54-55

Appendix 1 57-61
Appendix 2 62-65

SUMMARY

This paper uses a variety of sources from the current literature to review some of the more salient features of labor markets and employment in Ghana during economic decline and changes before and after the Economic Reform Program. We begin in Section 1 with an outline of the basic structure of labor markets in Ghana, identifying the critical segments, and the interrelationships between them. We discuss *inter alia* the aspects of government policy which specifically impinge on theses segments. It is argued that in Ghana, as in most developing countries, the narrow view of labor market policy is inappropriate, since it focuses specifically on the formal sector which is a small part of the labor market. A more helpful view of labor market issues is obtained by including the self-employed, the wage earners in the informal sector as well as the formal wage employees in the scope of the discussion. However, the data on earnings and employment in the formal sector tend to be more comprehensive in these economies, and in any case the formal sector is a large part of the monetary or non-subsistence economy. Thus, after a brief review in Section 2 of the essential aspects of Ghana's macro-economic evolution and policies in recent years, the discussion turns to the formal sector in Section 3. It focuses on the employment and wage implications of the phenomena decline and partial recovery of the Ghanaian economy, and pays particular importance to the relative performance of the private and the public sectors and to the changes in the differential in wage levels between them. We turn in Section 4 to the topic of the difference in wages between small and large firms within the manufacturing sector of Ghana. It is interesting to see that, even after a prolonged period of wage decline, which might be expected to lead to a squeezing of wage differentials of all kinds, the scale related wage differential continues to be as important in Ghana as in other developing countries. Some detailed data exist for the manufacturing sector in Ghana due to special enterprise surveys conducted by the Research Program of Enterprise Development (RPED) sponsored by the World Bank. These surveys, three waves spanning the years from 1991 to 1994 in a number of African countries, obtained data from enterprises and their employees covering the entire spectrum of sizes, ranging from micro to large firms. This material is especially useful for studying the wage structure in the manufacturing sector in Ghana in a comparative context. A brief review of the structure of the informal sector activities, undoubtedly the largest sector of employment activity of the poor, is given to complement the more comprehensive formal sector employment. In the following Section 5 we utilize the three waves of data collected from a sample survey of households over the years 1987-91 (called the Ghana Living Standard Survey-- GLSS) to study another important aspect of the labor market-- the relationship between education and earnings. Lastly, in Section 6 we turn to the larger issues of differences in the levels and distribution of earnings in the rural and the urban sectors of Ghana, and the related issues of labor market behavior and poverty. The treatment here is historical as we are interested in following the trends over time as they have evolved with the macro-economic development of Ghana. Section 7 concludes with the general findings of this paper and suggestions for further analysis to supplement the results reported in this paper; particularly we highlight gaps which could be filled through further analysis of the Ghana Living Standard Survey (GLSS) data sets. The appendices deal with role of labor in Ghana's economic growth using growth accounting and project poverty in Ghana up to 2000 using various growth projections based on Ghana CAS for 1997.

1. Structure of Labor Markets in Ghana

1.1. Introduction

It is customary to define labor markets in developing countries, first in terms of rural and urban locations, and secondly, to distinguish the formal and informal sectors within each. The formal sector is one in which wages are determined by institutional forces and is to be distinguished from the informal sector where labor earnings are much more flexible. The distinction between the self-employed and employees correspond roughly to the division between the informal and the formal sectors. The distinction is rough because the wage sector contains some workers who would be typically included in the informal sector; they would be workers in non-government services and small manufacturing enterprises.

In the economy of Ghana some special segments of the labor market have to be singled out for attention because of their importance in the structure of employment. Foremost is the sector producing the most important exportable viz., cocoa. Mining is similarly important in non-agriculture, though because of the high value added per worker in this sector, the number of workers affected is small. Because of its size, the public sector has been extremely important in the Ghana labor market. Its presence is large both in non-tradable services and in manufacturing. As far as the latter is concerned, although potentially tradable, the manufacturing in Ghana has so far been largely a special form of non-tradable, being mostly an import substituting sector. Special interest also attaches to traders- mostly self-employed, in wholesale and retail trade—because they enjoyed a bonanza in the sharing of rent when the trade regime was highly restricted, before the Economic Recovery Program; and subsequent to the liberalization of the regime must have suffered a severe whittling down of the rent element in their incomes.

1.2. Multiple Occupations

The quantification of the different segments of the labor market in an economy like that of Ghana is complicated because of the prevalence of multiple occupations. The same household would be involved in more than one sector, or as different working members are involved in activities in different sectors, or the same individual earner divides his time between different activities. We have two options in classifying households by sector. If we want the households to be classified in mutually exclusive groups we can allocate each household to that sector from which it derives the largest portion of its income. Alternatively, a household could be allocated to a sector if any of its earning member reports his/her participation in that sector. If we go the latter route, the same household could be allocated to more than one sector of activity, and the sum of relative proportions would add up to more than 100 percent. In their classification of the Ghana labor market Appleton and Collier have adopted the second method. In the

absence of other work attempting such classification, we summarize their results as giving a rough outline of the relative importance of the different types of income earners in the economy.

The authors analyzed the data available from the Social Dimensions of Adjustment Survey for 1988. They listed six socio-economic groups to which the households were assigned as follows;

i) Households producing the exportable crop, cocoa;
ii) Households producing other agricultural goods—basically food;
iii) Households with one or members who are retail or wholesale traders;
iv) Households with one or more members in wage employment producing non-traded goods and services (excluding traders and government and services);
v) Households with one or more members in wage employment producing manufactured goods;
vi) Households with one or more members employed in providing government services.

The extent of multiple occupations can be seen from the following Table 1.1 of incomes derived by the households in the sample from different sources which Appleton and Collier have calculated.

Table 1.1: Percentage in per Capita Income Deciles

	1	2	3	4	5	6	7	8	9	10
Govt.	3.1	6.7	8.5	10.4	8.6	10.0	10.9	13.7	15.6	12.6
NTG	8.4	8.5	9.7	11.8	11.7	8.8	11.1	8.9	10.9	10.2
Manu.	5.9	9.2	10.1	12.5	8.9	11.1	14.1	8.0	11.7	8.5
Traders	8.2	8.7	9.3	10.8	10.8	8.7	10.4	12.1	11.7	8.5
Cocoa	7.9	5.0	8.1	10.2	9.0	12.0	9.3	12.8	11.2	14.4
Food	10.5	11.2	11.0	10.3	9.8	9.7	9.2	10.2	9.3	8.8

Source: Calculation by Appleton and Collier (1990), p.84..

The size of the groups and their mean and median incomes per capita are given in Table 1.2. As already explained the same household may belong to more than one group depending on the diversification of activities of their earning members. The figures are not to be confused with earnings per worker in the different sectors. The full distribution of households by per capita income deciles is given in Appendix Table A1 of Appleton and Collier (1990) paper.

Table 1.2: Distribution of Income by Socio-Economic Groups

	Size of Groups	percent	Mean pcy	Median pcy	S.D. pcy	Poor percent
Govt.	1,536	10.9	84,906	41,885	443,527	18.3
NTG	2,064	14.6	44,977	34,237	44,030	26.6
Manu.	575	4.2	43,751	36,598	37,255	25.2
Traders	5,241	37.1	43,705	35,554	35,465	26.2
Cocoa	2,227	15.8	52,210	39,460	64,605	21.0
Food	9,166	54.9	45,122	31,916	1,182,188	32.7
TOTAL	14,130			46,404	34,289	151,202

pcy = per capita income in cedis for Ghana

A Household is described as poor if it falls into the poorest 3 per cent capita income deciles.

Source: Table derived by Appleton and Collier(1990) from the SDA Survey of 1988, p.83.

The figures are of interest in giving an indication of broad differences between the income per capita of households in different groups after the Economic Recovery Program had gone some way. They will be referred to again at appropriate points in the paper when we focus on the changing relative position of specific groups at different points in the country's changing economic regimes.

One point of general importance might be emphasized here. It is seen that the median incomes per capita are much closer together than the means. This implies that in some sectors there are considerably greater dispersion of incomes, with a lager proportion of households with relatively high incomes. This is particularly true of the government sector, and to a smaller extent the food sector. (The latter probably reflects regional diversity in the peasant sector in Ghana).

1.3 The Impact of Government Policies on the Labor Markets

A narrow view of government interventions in labor markets would confine the discussion only with those aspect of policy which have a direct impact on these markets. In the formal sector public sector wage and employment policy obviously is an important agent in Ghanaian context. Furthermore, because of the importance of public employment in the formal wage sector of the economy, these policies could be expected to have ripple effects on its private subsector. In particular, the public secure could be expected to act as a leader in the wage determination of the large-scale private firms.

Extending our view to the rural private sector, government policy clearly has a direct effect on the earnings of labor in the exportable sector - cocoa. As an exportable, the domestic price of cocoa received by the producers is heavily dependent on the value of the exchange rate—which the government of Ghana has tried to influence over many years. Additionally, the active role of the government in the marketing of cocoa has meant that the margin of the selling price of cocoa going to the producers has been heavily influenced by the government's fiscal policy.

Apart from these direct effects on labor earnings, the indirect effect of government policies extend to practically all the socio-economic groups identified above. The peasant food producers respond to the rural-urban terms of trade and the availability of goods imported from the urban economy on which they can spend their cash earnings from their marketed surplus. These are heavily influenced by the state's exchange rate and trade policies. Besides, they will be affected by the state spending on infrastructure and subsidies on agricultural inputs. In the urban economy, investment and capacity utilization is heavily influenced by demand conditions on the one hand, and the supply of essential imported inputs on the other—both of which are conditioned by a whole spectrum of monetary, fiscal and state policies. The resultant course of productivity in manufacturing influences employment and wages in this sector. Finally, one of the major determinants of the incomes of traders is the rent created in the economy as a direct result of the gap between administered and market prices in the regulated economy.

We will now present a potted history of the evolution of government policies and the course of the Ghana's economy, with particular reference to the way the way earnings and employment could have been affected in the different groups which have been distinguished.

2. Economic Policies and Basic Trends in the Economy

2.1 Pre-1983

Ghana stands out among African countries as holding the unenviable record of decline from a very strong economy. Although it had one of the very highest per capita incomes in the continent in the early 1960s, by 1982 it was ranked twenty-first out of forty-four African countries (World Bank 1989, p.18). Although Ghana had its fair share of economic shocks in the form of oil price increase, and severe droughts in 1975-77 and again in 1981-83, the massive involvement of the State in economic affairs, its mismanagement, and excessive public spending clearly have been the root cause of the decline. Income per capita declined by 30 per cent between 1970 and 1983, but the deterioration of the economy outside the peasant food producing sector was much more destructive. Cocoa -the mainstay of Ghana's export earnings—had a level of production in 1983 of just 28 per cent of its level of 1965 This was the joint result of overtaxing of

cocoa farmers and the massive overvaluation of the exchange rate. While Ghanaian cocoa producers received 15 to 40 per cent of prevailing world prices, those in the competitor neighboring country Cote d'Ivoire received at least 66 per cent. Thus production went up significantly in Cote d'Ivoire in the same period, and its share in the world market increased from 13 to 30 per cent (World Bank 1994, p.156).

The overtaxing of cocoa farmers in Ghana eroded the revenue base as it depressed production and encouraged smuggling. In spite of falling revenues government spending increased unconstrained by budgetary considerations—quite a bit of it due to grants to public enterprises. At the peak of the fiscal imbalance in 1976 the budget deficit amounted to 11.3 per cent of GDP. The inflation rate as a result went quickly from single to double and even triple digit levels—the average being 58 per cent in the decade of 1972-82. The process of inflation eroded real wages in the formal sector, including the public sector. It had reached levels at which attempts to protect the real value of wages were quickly eroded by the consequent budget deficit and accelerated inflation. Government policy makers found it politically impossible to change the nominal exchange rate during the inflationary spiral. Instead the balance of payments deficits which the inflating real exchange rate caused were sought to be controlled by quantitative import restrictions. The shortage of essential intermediate goods dislocated production in non-agriculture and had a severe effect on the infrastructure. The public sector protected employment, but at the end of the period real wages of public employees were no more than 25 per cent of their level around 1970. It is not hard to imagine the dive in efficiency of government services which this must have caused.

2.2 The Economic Recovery Program (ERP) and After

The program agreed to with international help in 1983 involved measures to stabilize the economy in the first place, followed by policies of structural reform on several fronts. A major effort was made on the exchange rate front leading to a massive devaluation as the black market premium on foreign exchange fell from 2000 per cent in 1983-6 to 21 per cent in 1987-91. It virtually disappeared in 1992-4. On the fiscal side a sharp increase in revenue as a result of a successful readjustment of its sources made it possible both to narrow the fiscal imbalance and raise the level of expenditure. The stabilization of the monetary base led to significant fall in the inflation rate.

The decline in the rate of increase of the consumer price level also saw a marked improvement of the internal terms of trade in favor of the rural sector—according to one source the ratio of the wholesale price index of manufactured goods to that of agriculture, forestry and fishing fell by more than 25 percent between 1983-6 and 1992-94 (World Bank 1995, p.16). The relative increase in the price of tradable—which in Ghana are mostly of rural origin—was one source of the shift. Other factors were the general rise in real consumption boosting the demand for food, and the erosion of scarcity prices for importables, including essential inputs for urban goods and services.

It is also likely that the margin enjoyed by traders—particularly in the urban areas—had fallen with the stabilization of the economy.

The stabilization measures saw a remarkable turnaround in the economy. Overall GDP growth rate increased from minus 1 percent to plus 5 per cent in the first five years of the ERP. Total merchandise export grew at 22 per cent per annum, with the traditional exports, logs and cocoa growing the fastest. Real wages recovered to some extent in the formal sector, as the rate of inflation fell. In the public sector some retrenchment allowed a greater part of the wage bill to be used to support recovery of real earnings.

The measures of structural adjustment of the economy seem to have been less successful. The public sector still dominates the formal labor market. Liberalization on the trade front has not led to the expected increase in manufacturing output. Public enterprises continue to be important and generally a drag on the efficient growth of the non-agricultural sector.

2.3 Recent Shocks

An adverse development has been the decline in Ghana's terms of trade since 1987. In 1994 it stood at a level more than 25 per cent below that of 1987. It has been pointed out that the net aid flow has virtually been wiped out by the terms of trade loss (World Bank 1994, figure 4.1,p.155). Some authors have argued that the foreign aid flow has prevented depreciation of the Ghanaian currency in the foreign exchange market to reflect the terms of trade deterioration (Younger, 1994). But it should be remembered that the net foreign aid was less than 5 per cent of Ghana's GDP, well below the average of 8 per cent for sub-Saharan Africa (ibid., p.155).

More recently the fiscal situation has deteriorated. The fiscal shock of 1992 was triggered by a large across-the-board increase in wages for civil servants and was accentuated by a fall in tax revenue and a shortfall in foreign aid. The narrow fiscal account went from a surplus of 1.5 percent of GDP to a deficit of 4.8 percent in 1992 and deficits of 5.6 in 1993 and 4.3 in 1995-- reversing the improving trend of the last seven years. The attendant expansion of money supply triggered a reversal of inflation trend as well. After falling to 10 per cent in 1992, the rate of inflation shot up to 25 per cent in 1993-1994, and more than 50 percent in 1995- 1996. The indirect impact on savings and investment seems to have been severe. The upward trend in gross private investment was interrupted in 1991, has continued to decline since then, and could be directly related to the macro-economic instability. While public investment tried to make up for the shortfall, it could do so only at the cost of public dis-saving, and at the same time private savings fell (World Bank 1995, pp. 9).

3. The Formal Sector

3.1 The Pre-ERP period

3.1.1 Employment

Ghana's employment in the formal sector has been dominated by the public sector for a long time, and it seems to be more true in the post ERP era. The employment series are summarized in Table 3.1 reproduced from ISSER 1994 (Table 8.4).

Table: 3.1: Formal Sector Employment, 1960-1991 ('000)

Year	Private Sector	Public Sector	All Sectors	Annual Change (percent) All Sectors	Public	SOPSE (percent)
1960	149	184	333	-	-	44.7
1965	118	278	396	+3.8	+10.2	29.8
1970	110	288	398	+0.1	+0.7	27.6
1975	137	318	455	+2.9	+2.1	30.1
1980	46	291	337	-5.2	-1.7	13.6
1985	67	397	463	+7.5	+7.3	14.5
1986	66	347	414	-10.8	-12.6	15.9
1987	79	315	394	-4.8	-9.2	20.0
1988	55	252	307	-22.1	-20.0	17.9
1989	38	177	215	-30.0	-29.8	17.7
1990	40	189	229	+6.5	+6.8	17.5
1991	31	136	186	-18.8	-17.5	16.1

Source: Ghana Statistical Service Quarterly Digest of Statistics

SOPSE= Share of private sector in total formal sector employment
Ghana ISSER 1994, Table 8.4, p. 139.

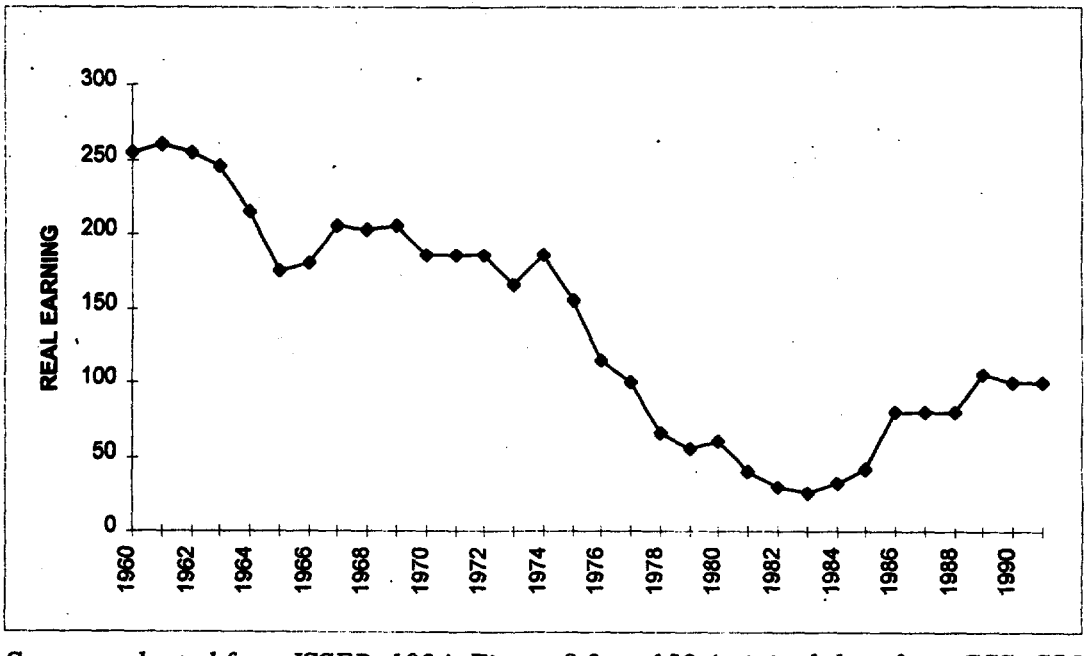
The major expansion in public sector employment took place before 1965. Over the next two decades the public sector increased its work force by 40 per cent—about the same relative increase as it had achieved in a single five-year period between 1960 and 1965. In the decade of 1965-75 the public sector employment increased at about the same rate as the private sector. Although the growth rate of employment in the formal sector had slowed down considerably, the public sector did not try to inflate it by over-zealous expansion. It was during the severe decline in formal employment during the crisis years of 1975-80 that the share of the public sector in formal employment

increased significantly. Private formal employment fell drastically to a third of its level. Public employment also fell, but to a much smaller extent as the state tried to hold the line on formal employment. But in spite of this effort, total employment in the formal sector in 1980 was only three-quarters of the level of 1975, and the private sector share of formal employment reached its lowest level of 13.6 percent .

3.1.2. Wages

The course of real earnings per worker employed in the formal sector is plotted in Figure 3.1 (reproduced from ISSER Figure 8.2, p.159). It shows that the drastic decline in real wages took place in the decade of 1974-83. If the cost of living deflator is to be believed the level of real wages in 1983 was a mere 12 per cent of its level in 1974 (ISSER, p.151). This decline in real wage was due to the failure of nominal wage increase to keep pace with the increasing rate of inflation. It was also the result of a deliberate policy of the government as the dominant employer to choose to reduce the wage bill, as much as it could, through wage decline rather than a reduction in employment. Between 1960 and 1985 while employment in the formal sector (with the public sector providing an increasing share) increased by 40 per cent, real wage fell by more than 80 per cent. Thus in spite of the employment increase the wage bill fell *pari passu* with the decline in GDP per capita and government revenue, but clearly the employment situation would have been much worse if the government had opted in favor of protecting real wage rather than employment.

Figure 3.1 Average Real wages of Formal Sector Workers (1960-91)



Source: adapted from ISSER, 1994, Figure 8.2, p. 159 (original data from GSS. CPI was used to compute real earnings.)

3.2 Post-ERP Developments

3.2.1 The Public Sector

In the years following the ERP there has been clearly an attempt to reverse the employment-real wage trade off implicit in the policies of the previous era. The government was persuaded to cut employment and increase the wage of the smaller work force in the interests of efficiency. The public sector employment was cut by 60 per cent between 1985 and 1991 (see Table 3.1 above). But at the same time real wage in the public sector went up by 170 per cent over this period, including a major hike of 80 per cent in 1992 (World Bank 1994, table 4.2, p.165). This put the public sector wage back to its 1970 level, but it was still only 72 per cent of its peak in the early sixties.

3.2.2 The Private Sector

The recovery phase 1983-87 saw a significant increase of private sector employment, and a slower growth of public employment. The private share of formal employment (SOPSE) climbed to a level of 20 per cent. But the figures bear adequate testimony to the story, that whatever might have happened in the rural and the urban informal sectors, recovery in the formal wage sector has not been sustained. In the period 1987-91 private employment fell drastically. In fact in 1991 it was only 70 per cent of its level in 1980. This time the public sector, under pressure from the adjustment program, offered only limited buffer for the decline in employment.

The setback after 1987 is evidently related to the trade liberalization measures which were strengthened in the second phase of the program. This disappointing trend in employment is related to the fortunes of the Ghanaian private manufacturing sector in the post adjustment period and will be discussed further at a later point in the paper.

The average real earnings in the private formal sector seem to have increased at the same rate as real wages in the public sector in the post-ERP period until 1988 (World Bank, ibid.). But did private sector wages fall to as low levels as they did in the public sector in the years of accelerating inflation before the ERP? Unlike the public sector, the private employer could be expected not to let wages fall below a threshold which would actually lead to a proportionately greater fall in efficiency than wages per worker. Nor is the latter obliged to follow a policy which favors retention of employment more than falling wages. In fact, we have already seen that private formal employment fell sharply while the public sector work force was expanding in the years prior to the ERP. Aggregate earnings data do suggest that in 1988, private sector average earnings were higher than those in the public sector; the private-public differential was 1.46. This differential in favor of the private sector seems to have been whittled down in the years after 1988 as public sector wages increased further. The over-all private-public earnings ratio stood at 1.07 in 1991 (ISSER, Table 8.14, p.153). The massive wage increase of 80 per cent in the public sector in 1992 must have pushed this ratio much further down although the data are not available for more recent years from this source.

3.3 Evaluation

3.3.1 Is the Size of Employment in the Public Sector too Large?

The public sector in Ghana consists of two distinct types: government services; and public commercial enterprises. Leechor has tried to put together the available data on employment in the different types of public employment in 1987 and 1992. These data are reproduced in Table 3.2 below.

Table 3.2: Number of Public Sector Employees, 1987 and 1992

Group	1987	1992
Core civil services[a]	131,089	102,173
Education services	159,000	167,370
Subvented organizations[b&c]	81,574	69,574
Security organiations[d]	29,000	29,000
Government services	400,663	368,117
Net retrenchment, 1987 to 1992	--	--
Public enterprises[e]	250,000	227,000
Net retrenchment, 1987 to 1992	--	--
Total public sector	650,663	595,117
Net retrenchment, 1987 to 1992	--	--

-- Not applicable

a. Between 1987 and 1972 a few organizations were added to the civil service, including the highway authority and the audit service.
b. Some employees of Subvented organizations were transferred to the core civil service between the two periods.
c. Includes estimates of agencies not covered inn the controller and accountant general's payroll, such as the internal revenue service and customs services.
d. Includes the police, armed forces, and civil defense organizations
e. Data are derived from partial coverage of public enterprises.

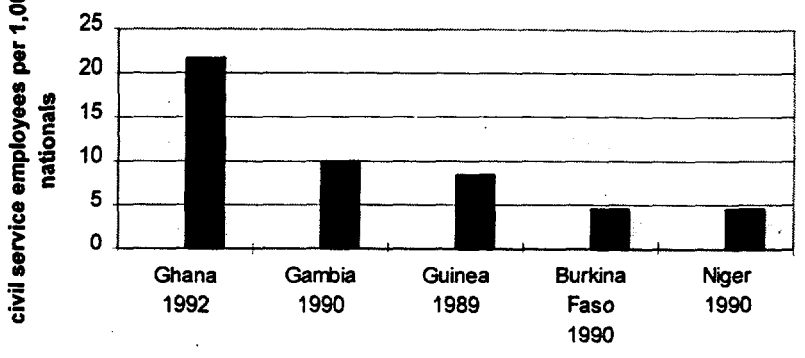
Source: Government of Ghana State Enterprise Commission (1992); Adapted from Leechor (1994).

The statistics show retrenchment of the order of 10 per cent during these five years of adjustment. But considerable doubt exists about the large size of the sector in Ghana's economy.

Public Civil Services: Leechor has pointed out that in spite of several rounds of retrenchment Ghana's civil service remains one of the largest in Africa relative to the

country's population (Figure 3.2). But in spite of the size, institutional capacity for effective public action remains weak. The large size of the sector hampers adequate supervisory and management oversight.

Figure 3.2: Size of Civil Service in five African countries



Source: Adapted from Leechor (1994)

Public Enterprises: Public enterprises played a dominant role in the evolution of Ghana's formal sector throughout the post-independence period. They established an important position in almost all sectors of the economy. Ghana is reported to have more than 300 public enterprises- more than any other African country other than Tanzania. Commander and Ugaz (Table 1, p.132) collected data from official sources for 224 non-financial state-owned enterprises (SOEs). In 1990 the total employment in these SOEs was calculated as 224 thousand (as against total employment in the formal private sector of under 40 thousand). The authors found that between 1986 and 1990 employment in the 17 core SOEs fell by 16 per cent. The government realizes the importance of reducing the dominance of SOEs in the economy. According to Leechor 63 out of 314 firms had been "divested" between 1989 and 1991, but it seems most of these are minor ones (p.169). Progress has been slow and bogged down in the mire of political concerns. For example, the government announced in 1992 that private companies would be free to trade in Cocoa, but this "privilege" was confined to the domestic market. Cocoa exporting remained the preserve of the monolithic Cocoa Board which was also granted the responsibility of licensing private companies supposed to be in competition with itself.

The public enterprises enjoy considerable advantages over private concerns in the form of financial assistance, use of state owned commercial assets, special tax concessions, as well as monopolistic market situation. It is clear that, given the narrow savings base in the economy, public investment has tended to "crowd out" private investment particularly in the formal sector. It is remarkable that the private investment rate has been well below the public throughout the post-ERP era, except for 1990-91. After registering a recovery between 1987 and 1991, the private rate of investment fell back to low levels, and in 1994 was hovering around its usual level of around 4.4 percent compared to the public investment rate of 11.4 percent of GDP.

3.3.2 Are Public Sector Wages too High?

We saw at the end of Section 3.2.2 that public sector wages seemed to have pulled ahead of private formal sector wages in recent years. But even if the figures of mean earnings quoted above seem to suggest this, we cannot conclude that the public sector has unambiguously higher levels of earnings without further probing. There are two reasons for this:

a. The quality of labor found in the two types of employment is different. To measure the "true" earnings difference between the sectors we must at least control for differences in measurable human capital characteristics of the work force employed by them.

b. We shall soon see that there are large differences in wage levels within the private wage earners. In particular the wage level increases significantly with the size of firms in the private sector. We need to make some judgment as to where in this hierarchy of earnings the supply price of labor lies. It is possible that the level of wages in the large private firms reflects the strength of union pressures or other institutional influences.

The first set of issues is easier to tackle than the second. The distribution of workers by educational levels in the sample covered by the GLSS does show that the public sector employees are better educated, as shown in the Table below (Table 3.3), although the gap might have been reduced in terms of years of education. Thus we would expect a differential in favor of the public sector on this account. On the other hand the somewhat larger proportion of females in the public sector would tend to bring the differential down if in fact there is a significant gender gap in earnings.

Table 3.3 Percentage Distribution of Employees by Education and Gender

Year	Sector	Primary	Middle	Secondary	Post-Secondary	Males	Females
1987	Public	4.8	63.5	17.9	13.8	75.3	24.2
	Formal Private	12.2	71.4	15.5	0.8	82.4	17.6
1992	Public	5.1	59.3	32.1	2.9	71.3	28.7
	Formal Private	5.7	70.9	23.1	0.4	80.3	19.7

Source: GLSS.

Dar, Tzannatos, Canagarajah and Thomas (1997) have fitted earnings functions to the GLSS samples for the 1987-8 and 1991-2 periods (Table 3). Their results are reproduced in Table 3.4.

Table 3.4 Coefficients of Earnings Function and Contribution of Explanatory Variables to Inequality

	1987-88			1991-92		
	Coefficient	Explained Inequality		Coefficient	Explained Inequality	
		(SD units)	(Percent)		(SD units)	(Percent)
C	2.453*	0.000	0	3.182*	0.000	0
Female	0.125	0.004	2	-0.006	0.000	0
Age	0.031	0.070	39	0.038*	0.090	43
Age2	-0.0002	-0.039	-22	-0.0003	-0.053	-25
Schooling	0.030*	0.053	30	0.056*	0.138	66
Public	0.560*	0.087	49	0.243*	0.037	17
State	0.488*	0.006	3	0.057	-0.001	0
Union	0.420*	-0.005	-3	-0.003	0.000	0
Urban	-0.072	0.003	2	-0.039	-0.001	0
		0.178	100		0.210	100
SD ln(Wages)=	0.761			0.774		
R2=	0.234			0.272		
SD*R2=	0.178			0.210		

Source: Dar et al, 1997;
** Significant at the 5 percent level.*

For both dates age and education are important determinants of earnings differences and of degree of inequality in the wage sector along with the public-private divide. In fact most of the observed inequality is almost entirely due to these three attributes. There are, however, significant changes in the relative importance of the three factors between these two dates. In particular, the impact of education as an explanation of earnings differences seemed to have increased markedly relative to the public sector influence. This is seen both in terms of the enhanced coefficient of the education variable in the earnings function, as well as in the percentage of earnings inequality accounted for by theses two variables. The premium associated in public sector employment has dropped from around 55 per cent to 24 per cent (after controlling for the other factors). At the same time the share of inequality due to education has doubled from 30 to 66 per cent, while that due to public sector has declined from 49 to just 17 per cent. These are dramatic changes which suggest strongly that the importance of the public sector in offering premium wage differentials has been reduced drastically in the wage paying sector of Ghana. There are, however, two important caveats to keep in mind.

First, comparing the distribution of employees by education levels, as given in Table 3.3 it is seen that a much larger proportion of employees with secondary education

are found in the public sector relative to those with less education. Those with post-secondary education have inexplicably disappeared from the scene, with only small proportions found in both the public and the private sectors. (In fact, the GLSS for 1991-2 reports that fully a quarter of those with post-secondary education were in the "non-working" category). Whether or not this disappearance of post-secondary employees is a real phenomenon or not, the higher proportion of the educated with secondary levels in the public sector in 1991-2 compared to the earlier date is a clear characteristic of the sample. In so far as the recruitment to the public sector is correlated with secondary education this change in characteristics would tend to increase the importance in earnings differentials relative to the public-private divide.

Secondly, and perhaps more importantly, the large increase in public sector wage scales in July 1992 is unlikely to be reflected in the earnings data from the 1991-2 GLSS survey. Unfortunately we do not yet have an earnings survey of the GLSS type for a more recent date.

In the absence of such analysis, we try to draw some tentative conclusions using additional data sources. We have some detailed information on earnings in the manufacturing sector of Ghana from the sample surveys conducted by the World Bank under the auspices of the Research Program on Enterprise Development (RPED). These surveys of enterprises and a sample of workers attached to each enterprise were conducted in three 'waves' in each of the years of 1992, 1993 and 1994. The data of mean earnings by size group of firms are reported in Table 3.5 together with an estimated mean of monthly earnings in the public sector after the 80 per cent wage hike of 1992. The spread in mean earnings over the firms of different size groups is enormous, and will be discussed later. For the moment we can note that compared to the manufacturing sector, average earnings in the public sector were generally at a higher level than even those prevailing in the large firms. In 1992 mean earnings in the public sector were 58 per cent higher than the average in large firms and more than four times higher than the average earnings of workers in micro enterprises. It might be objected that the survey data for private manufacturing firms in 1992 had been collected too close to the period of the public sector wage hike, and the ripple effect of the latter might be more truly captured in the data for 'wave 2' of 1993. But even this comparison (which does not allow for price increase over the year) shows that mean public wages were 28 per cent higher than the average earnings in the large firms.

Table 3.5: Earnings of Worker by Employment Size of Enterprises in Manufacturing, Average Earnings in the Public Sector and the Minimum Wage 1992-94

Earnings in Manufacturing: (monthly, in cedis)	Wave 1 (1992)	Wave 2 (1993)	Wave 3 (1994)
Large (100+)	41,420	48,876	56,849
Medium (30-100)	31,820	38,392	41,017
Small (5-29)	17,943	25,098	26,682
Micro (<5)	13,419	13,161	14,264
All	25,696	33,272	36,215
Average Earnings in the Public Sector	62,687		
Minimum Wage	13,617		

Source: The data for the manufacturing enterprises are generated by the RPED surveys and are taken from the analysis of F. Teal (1996), Table 3, p. 971.

The average public sector earnings for 1991 are taken from ISSER 1994, Table 8.14, p. 153. They have been blown up by 80 percent in the across-the-board wage increase granted to public employees in July 1992. The figure for the minimum wage is from the same source, adjusted by the cost-of-living index for Accra.

While the figures of average wages in Table 3.5 strongly suggest that the recent wage hike has taken public sector wages to a new plateau—exceeding wages in the private formal sector by a substantial margin, the evidence is not conclusive because we are not able to control for differences in the quality of labor. It is possible to have more conclusive evidence if we confine ourselves to the sub-sector of public enterprises. The RPED surveys include state owned enterprises along with private manufacturing firms. The earnings regressions performed on the sample of all male workers covered by this data set by Francis Teal is reproduced in Table 3.6. Teal pooled the data for all three waves. Price changes between the surveys were controlled for by the use of dummy variables for the three years.

Table 3.6: Earnings Equation for All Workers and Apprentices who Earn: Full-time and Male Dependent Variable ln (earnings).

Variables	Equation (1)	Equation (2)
Constant	7.3	5.49
	(3.5)	(22.2)
Age	0.06	0.17
	(5.7)	(15.4)
Age^2	-0.001	-0.002
	(4.6)	(12.8)
Education (in years)	0.02	0.032
	(3.9)	(5.4)
Tenure	0.01	0.02
	(3.3)	(5.5)
In Size	0.08	0.09
	(4.0)	(3.7)
Union	0.21	0.25
	(4.8)	(3.7)
Firm Age	-0.009	-0.005
	(6.2)	(5.7)
Profits per employee	0.05	0.05
	(5.1)	(4.2)
In Capital/Labor ratio	-0.02	0.005
	(1.8)	(0.4)
Foreign ownership	0.18	0.17
	(4.3)	(3.60)
State ownership	0.35	0.32
	(5.0)	(3.1)
Wave 2	0.21	0.24
	(5.2)	(4.96)
Wave 3	0.32	0.32
	(8.3)	(3.9)
Adjusted R^3	0.72	0.57
F (D.F.)++	3.9(56,1439)*	2.0(42,1460)
X^2 (White test) (D.F.)	529 (389)	385 (231)
Number of observations	1,526	1,526

* indicates pooling is rejected at the 1% significance level.

+Equations (1) and (2) both control for sector and location effects. Equation (1) also controls for occupation while equation (2) does not.

++ The F test is a test for the validity of pooling the regression.

The absolute value of t statistics are in parenthesis where the standard errors have been corrected by White's method (1980).

Source: Teal (1996).

The regression models control not only for the human capital characteristic of workers, but also for a number of variables pertaining to the enterprises themselves. It is seen that the ownership variable is strong and significant in spite of the large number of

explanatory variables used. For our present topic the important result to note is that the "net" effect of state ownership is to raise the level of earnings by 32-35 per cent over the level of private sector firms with African ownership. This effect is larger than foreign ownership—which is also significant but raises earnings by only 17 to 18 per cent compared to the African-owned firms.

3.3.3 The Distribution of Earnings

It is not enough to consider merely the difference in mean earnings between the public and private sectors, even if we are able to control for differences in the quality of labor to some extent. The wage structure in the public sector, as it has evolved during the large changes in nominal wages in the last decade is of major interest. On the one hand, we would want to see if the earnings of workers at the bottom of the distribution have fallen so low, relative to the other sectors, that efficiency of performance is impaired. On the other hand, it is desirable that the structure of earnings should be wide enough to allow for the possibility that higher skills and responsibilities are adequately rewarded.

We refer back to the comparative distributions of per capita incomes in different sectors, including public employment, produced by Appleton and Collier from the data set of the Social Dimensions of Adjustment Survey conducted in 1988, and presented above in Table 1.2 above. It will be recalled that the researchers allowed for multiple occupations. The statistics reported are the per capita household income, pooling the income of earners of members from all sources—and not the distribution of earnings in the particular sector.

The data presented show that while mean and median per capita incomes of households in the "government" group were significantly higher than those in the other groups, they also had a smaller proportion of households in the "poor" or bottom three deciles, and a larger proportion of households in the top deciles than the over-all sample of households surveyed. We can conclude from these distributions that workers depending partly on government work had higher income levels at the bottom of the distribution, and had also a wider distribution of income than the other socio-economic groups distinguished.

Between 1988 and 1992, the government tried to follow an incomes policy according to which average real earnings were held more or less constant, while salary differentials were permitted to widen across grade levels and occupational categories. This was tantamount to widening the earnings distribution further. However, in July 1992 the government announced an across the board increase of public sector wages by 80 per cent—which clearly had the effect of squeezing the earnings structure at the same time as it pushed up the levels of income of public sector employees at the bottom of the distribution further.

The finding from the statistics presented so far that public sector workers in the late eighties enjoyed a higher level of income at the lower end of the distribution than workers in other sectors is corroborated by some work on the earnings of workers laid

off by the government. Alderman et al (1996) surveyed 506 former government workers who had been redeployed (the date of the survey was the second half of 1991) . Most of the redeployees came from the lower echelons of the civil service: 80 percent of them had held unskilled jobs. The researchers found that while 85 per cent of the retrenched workers had another job at the time of the survey their average earnings were considerably below what they had earned before. They estimate earnings functions for the redeployed, with and without corrections for selectivity bias, and concluded: "The returns to human capital do not differ before and after retrenchment; earnings simply shift down...For those redeployees currently working, earnings fell... on an average of their previous earnings. This, however, is a mean over a heterogeneous group...The few redeployees who have found work in the wage sector have fared reasonably well, but the remainder have suffered substantial declines in income, even those who are currently fully employed. For the underemployed farmers, earnings have all but disappeared." (Alderman et al, 1996)

Alderman et al (1996) interpreted the difference in earnings before and after redeployment as evidence of "rent" associated with civil service employment. They write: "In both types of models, the earnings decline is captured entirely by a downward shift in the (earnings) functions intercept. While it is possible that this reflects the loss of a good job match, that interpretation is implausible when we consider that virtually all the redeployees who did not volunteer had unskilled jobs as sweepers, messengers etc. It is difficult to believe that their civil service earnings were above market rates because they had special skills that made such posts a good job match. The notion that public sector employees, especially at the lower echelons, were simply allowed above market earnings seems much more realistic."

Some doubts remain about the rather strong conclusions on this point by Alderman et al. In particular as already pointed out, and as emphasized by themselves, the difference in earnings was pronounced for those who found jobs as self-employed. The literature of labor in developing countries (and elsewhere) have emphasized that the self employed are likely to show lower mean earnings than the employees (even without under-reporting of incomes) principally because of two reasons: first, the efficiency wage mechanism establishes a bottom for wage employees, in so far as no employer would offer a wage below the threshold at which efficiency begins to decline proportionately more than the wage. No such threshold holding up the minimum wage, of course, exist for people working for themselves; second, the self-employed have expectation of earnings from their entrepreneurial initiatives particularly at a later age if and when they are established.

The point about the rental element in public sector wages would be strengthened if we have evidence about a difference in earnings between public sector employees and wage employees in the private sector—and particularly wage earners in the non-corporate or informal private sector. It is to an analysis of this topic that we now turn.

4. Firm Size and Wage Levels in Ghana's Manufacturing Sector

Detailed data exist from the surveys of enterprises and their workers conducted in the manufacturing sector of Ghana by the Research Program of Enterprise Development (RPED) of the World Bank. As already mentioned we have the data in three waves between 1992 and 1994. This material will be used to investigate the variation in labor earnings by size of establishment in the manufacturing sector of Ghana, since the sampled enterprises covered the entire spectrum from the micro to the very large. The topic is particularly important for assessing the extent of wage difference between the informal (small) and the formal (large) sectors in manufacturing, and the role of institutional factors in causing theses differences.

4.1 Analysis by Teal

We have already referred to the work by Frances Teal on earnings function using the RPED data. His estimation of the function reproduced in Table 3.6 above, showed that, after controlling for human capital characteristics of the worker and profitability and capital-intensity of the enterprise, earnings increased by firm size in a rather substantial way. Teal in these equations used the logarithm of firm size as the explanatory variable. The high significance of this variable showed that earnings increased with firm size a in a non-linear way. The elasticity of earnings with respect to firm size varied from 0.07 to 0.13.

It is more interesting to have an idea of the way labor earnings increase for different size groups of firms. For this, one needs to use dummies of different size groups of firms in the earnings function. In another piece of analysis Teal does just this (Teal 1994). Data for all workers for the first two waves are pooled and an earnings function is estimated with the following variables: age; highest level of education; occupation; location; industry; unionization—along with firm size dummies, and a dummy to control for the change between the two years. Teal summarizes the results of our interest as follows:

"Standardizing for skill, workers in small firms, which are those employing between 5 and 29 workers, earn 21 per cent more than workers in micro firms i.e., those employing 5 or less. Medium sized firms, i.e. those employing 30 and 100 workers, pay an additional 14 per cent, while the category of large firms, those employing more than 100 workers pay a further 13 per cent. The cumulative effect of these earning differences across firms is that workers in firms employing more than 100 workers earn 55 per cent more than those working in micro firms.." (Teal 1994, p.13, using results from Table 1).

Referring back to the topic of the last section, it should be emphasized that sate owned enterprise are generally large firms. Thus the earnings level in public enterprises, which were seen to enjoy a premium of 35 per cent or so, could be as much as 100 per cent more than in the micro enterprises (after controlling for all the other significant factors affecting wages).

4.2 Analysis by Mazumdar

Mazumdar's work (1994, 1995) on the RPED data for a number of different countries follows a different procedure. The purpose of the empirical work on the earnings data is to classify size groups of enterprises in each country which tend to show different levels of earnings. This way we seek to avoid the imposition of an arbitrary

classification of enterprises by working with the same size group in each country. The first step in our procedure is then to see the distribution of the earnings of workers of "equivalent quality" with respect to the enterprise size in which they work. First, we try to get at the earnings of labor of "equivalent quality" by controlling for observable human capital factors: experience, education, apprenticeship, and permanence of employment. In addition, industry dummies are used as control variables in the earnings function.

Secondly, we use the estimated earnings function to obtain the "residuals" for each observation (i.e. individual worker) used in the regression. These residuals could be plotted against the employment size of the enterprise of the employee in a scatter diagram. It soon became apparent, however, that the scatter diagram created in this way contained too much "noise" to yield any meaningful observations about the nature of variations of earnings with enterprise size. We then tried to reduce the "noise" by grouping the enterprises into a large number of size groups, and plotting the median of the residuals in each individual group against the size groups.[1] The reduced number of observations in the scatter which this procedure permits makes it possible to read into the diagram the way the level of earnings of labor of "equivalent quality" seems to change with size groups. This empirical procedure helps us to distinguish several categories of size groups which show significant variations in the levels of earnings i.e., the "residuals" after controlling for the human capital determinants of earnings. Table 4.1 sets out the size groups of establishments for each category which were identified in the different countries. Note that apart from the size groups differing somewhat from country to country within each category (micro, small etc.), the empirical procedure distinguished fewer categories for some countries than for others.

Table 4.1: Size Groups Identified within each Category for Different Countries

Category	Kenya	Zambia	Zimbabwe	Cameroon	Ghana
Micro	0-5	0-15	0-10	0-5	0-13
	(5.6)	(18.6)	(9.2)	(6.7)	(14.0)
Small	5-20	15-50	10-80	5-19	13-34
	(14.0)	(25.8)	(27.4)	(20.4)	(20.7)
Medium	20-70	50-180	80-200	19-50	34-90
	(41.0)	(33.7)	(25.9)	(32.9)	(34.2)
Large 1	70-200	180+	200-400	60-200	90-225
	(22.0)	(22.5)	(19.3)	(25.6)	(15.0)
Large 2	200-400		400-1500	200+	225+
	(9.2)		(13.6)	(14.5)	(16.1)
Very Large	400+		1500+		
	(8.3)		(4.6)		
Total (N)	1015	708	1334	781	386

[1] *Medians* are used rather than *means* to avoid the influence of extreme values.

Note: Figures in parenthesis are the percentage of the total sample of male workers in each category.

Source: Mazumdar (1994), Table 1, p.4.

Of the five countries considered, Zimbabwe seems to stand apart on its own. A larger percentage of the workers are to be found in very large firms, and earnings levels seem to increase through successive levels of size groups to the largest group employing 1500 or more workers. All the other countries attain the highest level of wages in much lower size groups. Zambia, Cameroon and Ghana have the highest wage level in the 200+ size group, while Kenya has it in the 400+ group. The definitions of the micro, small and medium sized enterprises differ in detail from country to country, but generally they are all within a generally accepted range.

Earnings functions were estimated for each country, using the size groups defined in Table 4.2. We performed the exercise by using the size group dummies which were identified in the first step for each country as explanatory variables, together with the control variables defined above: Experience; $(\text{experience})^2$; education dummies; industry dummies; and dummies defining if the worker had an apprenticeship or not, and if the worker was permanent or not. The values of the enterprise size coefficients from the estimated equations are given in Table 4.2.

Table 4.2: Coefficients of Enterprise Size Dummies

(with human capital control variables in the regression)

Category	Kenya	Zambia	Zimbabwe	Cameroon	Ghana
Small	0.21	0.15	0.45	0.3	0.31
Medium	0.34	0.25	0.56	0.35	0.43
Large 1	0.64		0.61	0.43	0.53
Large 2	0.53	0.63	1.08	0.64	0.65
Very Large	0.6		1.32		
Adjusted R2	0.313	0.455	0.362	0.492	0.298

Source: Mazumdar (1994), p.6.

Except for Kenya, the values of the coefficients increase successively with the size groups. Our visual procedure of distinguishing the size categories have been largely successful.

The base used for the size group dummies is the "micro" category for all countries. The values of the coefficients in Table 4.2 thus show the relative increase in earnings with respect to the micro enterprises, and the incremental values of the

coefficients of the successive size-groups give the relative increase as one moves to a higher size category.

It is seen that the structure of earnings related to size groups in Ghana is very similar to that in the Cameroon. In the Eastern African countries of Kenya and Zambia, the jump in earnings as one moves from micro to small firms are smaller. But then the latter two have a sharper increase in earnings than Ghana between the medium and large categories, leaving the overall differential between large and micro enterprises almost the same in all four countries. Zimbabwe stands alone in having a sector with very large firms, and the earnings differentials increase much more for the larger enterprises.

The era of decline of wages could have been expected to narrow the differential in wage levels between the large and small firms since the wage structure is compressed against a threshold defining either the subsistence or the efficiency level of wages. The finding that average earnings, after controlling for the measurable human capital factors, increased continuously with enterprise size in Ghana, as in other African countries, is an important one. Although the size-related wage differential is much more for Zimbabwe, the extent of the premium enjoyed by workers in the large firms compared to the micro-enterprises is quite large in the other countries, including Ghana—of the order of nearly 90 per cent.

4.3 Causes of the Increase in Earnings with Firm Size

The first hypothesis which comes to mind is that the increase in earnings with firm size is due to institutional factors affecting the wage level . Ghana prescribes minimum wage levels, and it might be argued that these levels are enforced in larger firms and not in micro or small firms. The average monthly earnings of workers in the manufacturing sector at the date of the 1992 RPED survey have been given in Table 3.4 above together with the minimum wage level prevailing at this date.

It is seen that the minimum wage was more or less at par with the average earnings in micro enterprises, and as such could be considered to have provided a floor to the wage level. It might be argued that wages of the least paid or unskilled worker in an enterprise would be less than the average earnings. If this were the case the minimum wage could conceivably fall between the levels of the bottom wage in micro and small firms. On the further assumption that minimum wages are at least enforceable in small firms, but difficult to enforce in micro enterprises, we could at a stretch ascribe the differential between micro and small firms to the minimum wage laws. But this explanation leaves untouched the reasons for the continuous increase in earnings, after controlling for measurable worker quality, with further increases in firm size.

Other possible routes of institutional influence are public sector wage policy and unionization. The levels of wages established for public sector enterprises, particularly in the state owned enterprises could have a disproportionately strong effect on the larger firms. But this argument has the same difficulty as the minimum wage hypothesis—it

explains a possible wage differential above a threshold size, but not the continuous non-linear increase of wages with firm size which we observe in the available data set.

The prevalence of the phenomenon of wages increasing with the enterprise size in many developing countries—and not just in Africa—suggest there are some basic factors underlying this relationship in the labor markets of these countries. The wage-size relationship exists in developed countries as well but it is quantitatively much stronger in developing countries. One must, therefore, look for some factors causing wage levels to increase with enterprise size which are more pronounced in developing rather than developed country labor markets.

The various issues involved have been discussed in detail elsewhere (Mazumdar 1995). We shall only summarize the conclusions from this discussion here.

The starting point of the explanation of the observed relationship clearly is the inelasticity of labor supply to the individual enterprise. It could be supplemented with the consideration of a group of factors generally considered under the rubric of 'efficiency wage'. It should become clear in the course of the discussion that 'efficiency wage' considerations could be associated with firm size. A third way wages might increase with firm size is if labor productivity, economic rent and profits increase with firm size and firms set wages with profit-sharing type of considerations.

4.4 Inelastic Supply of Labor

Assume that each enterprise recruits labor from its local pool of labor. Each enterprise in this case faces an upward sloping supply curve of labor, and the wage level would increase with the employment size of the enterprise. Clearly such a model of fragmented labor markets is not realistic without further specification, especially in a developing country where wage levels in urban manufacturing are generally established at a level significantly higher than in the rural sector from which there is a constant supply of labor to the urban economy.

The hypothesis that skilled labor might be in inelastic supply to manufacturing , even if there is a plentiful supply of unskilled labor is not sufficient. First, the earnings function analysis does control for observable human capital attainments like education, training and experience. Hence when we hypothesize that skilled labor commands a higher price we are referring to such factors affecting the quality of labor which are not measured in terms of these observable attributes. Secondly, even if superior labor be defined in terms of unobserved quality, why should not the higher wage commanded by superior labor be equally prevalent in enterprises of different sizes. To establish the wage-size relationship we need one or both of two additional hypotheses.: (a) the proportion of 'superior' labor used in the enterprise increases with the size of the enterprise.; (b) the enterprise must produce its own supply of 'superior' labor through on-the-job training in its internal labor market, and the supply price of such labor increases with the volume of 'superior' labor needed by the enterprise.

The first of these hypotheses appears to be weak. The larger enterprise would clearly need a larger volume of superior labor, but the relative weight of such labor in

determining the average wage would depend on its share in the total labor force in the enterprise. The suggestion that this share increases with the size of the enterprise would appear to be arbitrary.

The second hypothesis based on skill formation in a firm specific internal labor market has greater plausibility. But to yield the observed wage-size relationship, we need to postulate that the cost of producing 'superior' labor within the enterprise increases with the volume of 'superior' labor needed. This is not an unreasonable hypothesis if we believe that the production function for 'superior' labor includes some relatively fixed factor of production, specific to the enterprise, which cannot be increased at unchanged cost at the same rate as the total volume of employment. Management or supervisory labor could indeed be such a factor of production of 'superior' labor.

4.5 Efficiency Wage

The efficiency wage hypothesis simply suggests that a higher wage induces greater efficiency from the worker. Hence, as long as the increase in the supply of units of labor, measured in standard efficiency units, increases proportionately more than the wage per worker, it would reduce wage costs for the employer if he meets his demand for labor units by increasing wages rather than hiring extra labor at the going wage rate. In effect, if this mechanism holds, a profit maximizing employer would set the wage at the point where the cost of a standard efficiency unit of labor is minimized., even if there is a pool of labor wanting to be employed at a lower wage per worker. This point of a 'wage floor' is established where the elasticity of the supply of effort with respect to the wage per worker changes from being more than unity to less than unity.

The basis for the postulated relationship between wages and the worker's efficiency has been much discussed in the literature. They range from better nutrition, to incentive and morale factors, and to a range of labor market variables like size of good quality applicants, labor turnover rate, cost of shirking etc. The wage-efficiency relationship could be observed in firms of any size group. But it has been maintained that it would be more important in larger enterprises, that is to say, the minimum wage cost point would be established at a higher level, the larger the size of the enterprise. The more important points supporting this hypothesis include:

(i) The cost of supervision increases with employment size. Hence larger firms, at the margin, would tend to get more of their labor requirements met by increasing wages rather than by hiring more workers.

(ii) Larger firms have more expensive machinery and a higher capital-labor ratio. Thus the cost of labor turnover for them—in terms of output loss when a worker leaves and a new recruit has to be trained—is higher than for smaller firms. Hence they will be willing to offer a higher wage to reduce the turnover rate.

(iii) If the quality of labor needed increases with the size and value of the capital equipment, larger enterprises would be offering a higher wage to attract a pool of applicants in which workers of potential quality are better represented.

In sum, while the wage-efficiency relationship operates generally as an independent factor influencing wages, it is partly not separable from the enterprise size effect, in so far as it is stronger in larger firms.

4.6 Increasing Returns to Scale and Profit Sharing

Another route through which enterprise size could affect the level of wages is through the production side. Generally firms with higher capital intensity would have higher value added (and rent) per worker. If there is increasing returns to scale then we would expect to see labor productivity increase with enterprise size even after controlling for the increase in capital intensity. Such a relationship might exist because of technological factors, or imperfections in the markets for products or other inputs. In any event increasing returns to scale provide an opportunity for value added per worker to increase in such a way that the surplus after payments to factors of production increase with size. This surplus is potentially available for sharing between profits and wages—either through bargaining or a cooperative solution.

In the work of Teal discussed earlier the variable 'profits per worker' does show up as a significant explanatory variable in the earnings function, along with the 'log of enterprise size' and 'unionization'. Profit sharing thus exists as an independent effect in the Ghana manufacturing sector. At the same time production function analysis for a sample of firms in the sector showed that value added per worker increased strongly with enterprise size, even after we have controlled for the increase in mechanization as measured by the capital-labor ratio (Mazumdar 1994). The increasing returns to scale which this relationship implies derives both from technological and product market characteristics. The quantitative importance of such factors in Ghanaian manufacturing can be compared with the results from similar analysis undertaken for selected samples of manufacturing enterprises in other African countries. They are as follows:

Table 4.3: Elasticity of Value Added per Worker with respect to Capital and Labor

	Kenya	Zambia	Zimbabwe	Cameroon	Ghana
Capital-labor ratio	0.24	0.18	0.31	0.28	0.23
Employment size	0.09	0.19	0.10	0.17	0.05

Source: generated from Mazumdar (1994)

It is seen that while Ghana is more or less on par with the other African countries as far as the increase in relative productivity of labor with increase in capital intensity is concerned, the strength of increasing returns to scale is the lowest in the sample. This may be because of the low productivity of State owned enterprises in Ghana which tend to be of large size. A second relevant factor is the relative inefficiency with which capital stock is used in Ghana's manufacturing sector. The liberalization of the economy under the ERP was expected to ease the foreign exchange constraint impeding adequate supply of essential inputs and thus improve the utilization of capacity. This did happen to some extent as it pulled up from a low of 18 percent in 1984. But the level reached in 1992 of 45 percent is still pretty low by international standards.

The difference in wage levels by size of enterprise in manufacturing is of relevance to another basic aspect of the labor market in Ghana: the difference in the levels of earnings between the "informal" and the "formal" sectors. The wage levels in micro enterprises can be expected to be near the mean earnings of workers - wage earners as well as the self-employed - in the informal sector, particularly in the urban economy. But more detailed analysis of the formal-informal earnings differential must await further work on the GLSS data sets. In the next section we give an overview of the informal sector activity and some of its salient features from a cursory look at the data available.

4.7 Informal Sector Activities in Ghana

The complexity in the definition and measurement of informal sector activity is a perennial one. Although we do not want to get into the semantics of this issue it is important to recognize that informal sector activities play an important part in the lives of people in developing countries and Ghana is no exception.[2] Hart (1973) who coined the term "informal sector" ironically used a study of Accra and Nima in Ghana to show the importance of such activities for national income and employment estimates considerations. Both from a labor market perspective and also from a living standards and welfare perspective informal sector activity is important. Some estimates based on GLSS data indicate that on average in Ghana households earn more than three-fourths of their income from informal sector activities, i.e. activities which are not covered in our formal sector earnings discussion hitherto (GSS, 1996). It is stated that in areas such as rural Savannah almost 90 percent of household income comes from informal sector activity compared to 45 percent in Accra. Alternatively household activity generated consumption (subsistence consumption) accounts for around 27 percent of household consumption with 56 percent in rural Savannah and 2.6 percent in Accra, indicating the subsistence nature of informal sector activity for Ghanaian households. Estimates of informal sector incomes and output in Ghana suggest it to be a sizable percentage of current estimates of GDP. For instance non-farm enterprises are estimated to contribute at least 20 percent.

[2] For some useful information on the characterization and definition of informal sector see Thomas (1992), Turnham, Salome and Shwarz (1989) and Suthuraman (1981) among others.

However, it must be noted that the above numbers based on GLSS are likely to be underestimates of the actual size of informal sector, as many activities are small and fall outside the standards definitions of economic activity and will not be considered as important by households and hence not divulged to enumerators during household or even enterprise surveys. It is an accepted fact that non-farm enterprises always underreport profits as their concept of profits mostly does not take subsistence consumption into account which tend to form a large component of revenue in most households level activities. In the absence of any other meaningful tracking of informal sector activity it can be argued that GLSS type household data can be used to construct reasonable estimates of informal activities in agricultural and nonagricultural sector.

In Ghana's case under household agricultural activity food crops predominate export crops as the main item of consideration in informal sector activities. In certain agro-climatic regions like, rural forest and rural Savannah a large majority of output and value added in crop production comes from informal activities. In crops maize and cassava are followed by grains and starches, from all of which large proportion is consumed by households. Cocoa production accounts for a very low proportion of total household informal activity income. In cases such as livestock production more than two thirds of income is non-cash and also a large portion is self consumed.

Table4.4: Source of Household Income by Quintile

Source	First	Second	Third	Fourth	Highest	Ghana
wage	7.2	9.6	12.1	14.0	17.2	13.6
NF self emp income	1.7	0.2	0.5	1.6	1.7	1.3
Formal	***8.9***	***9.9***	***12.7***	***15.6***	***18.9***	***14.9***
wage	4.3	4.0	3.2	2.3	1.5	2.6
Agric income	58.7	56.4	52.6	46.2	44.9	49.4
NF self emp income	19.1	21.9	25.1	26.1	25.5	24.5
Informal	***82.1***	***82.4***	***80.9***	***74.6***	***71.9***	***76.6***
Other	***9.0***	***7.8***	***6.5***	***9.8***	***9.2***	***8.7***
All	100	100	100	100	100	100

Source: GLSS, 1987/88

In non-farm agricultural household enterprises a large share is in urban areas and two main sectors are trading and manufacturing. The latter was analyzed using RPED data, while the former is least understood. It is clear that in trading there is low capital involved and very seldom hired labor utilized, making it a substantially household enterprise activity, as opposed to most manufacturing which compared to trading has more capital and more hired labor. Other activities such as transport, construction and services also employ a large share of non household members, while transport by far has the highest capital component of any informal sector activity.

Informal sector activities play an important role in the lives of poor people. It can be easily seen from the following table that income derived from informal sector

activities declines monotonically with higher levels of welfare. However, it is worth mentioning that given the complex nature of measuring income accruals from informal sector activity and different kinds of payment systems in existence in the sector, formal sector employment and formalized manufacturing sector has mostly been the subject of analysis in earnings and employment literature. It is worth noting the fact that in informal sector activities accruals are a mixture of wage and profits and hence can not be used in more conventional wage earnings analysis that follow in the next section.

5. Education and Earnings

An important issue in the analysis of labor markets in Ghana is the way the economic decline and subsequent recovery of the economy has impacted the earnings differences in Ghana with respect to education. The availability of the GLSS data set for the period when the economic recovery program was just beginning to have an impact and more recently for 1991-2 enable us to shed some light on this major topic.

It should be clearly stated at the outset that the variation of earnings with education levels might be quite different for the three major types of labor which exist—the self-employed, the wage employees in the private sector, and wage employees in the public sector. Clearly wage determination in the public sector is administrative. Although the significant size of this sector would be a factor in affecting the demand for labor in the labor market as a whole, private employers would tend to set wages in a much more competitive way. As far as the self-employed are concerned, it might be argued that if the labor market functioned well, their structure of earnings would be the same as that of the private sector wage earners. But there are two relevant points against this happening. First, the observed earnings of the self-employed are only partly returns to labor—for many a major part of the income might be returns to entrepreneurship and capital. Secondly, in a developing country the many factors segmenting labor markets drive a wedge which keeps returns to labor apart in different segments. In particular, we have already seen in the last section that wage levels, after controlling for education and age, vary substantially by the size of firms in the manufacturing sector, and that the premium enjoyed by employees in large units compared to micro-enterprises is substantial. Does this segmentation also affect the returns to education in the wage employment sector—much of which is the 'formal' part of the labor market—compared to the self-employed representing the 'informal' sector?

Canagarajah and Thomas (1997) provide an over-all picture of the relationship of earnings to education in the wage employees' market, without distinguishing between the private and public sectors. The estimated earnings functions for the two dates--1987 and 1991-- are reproduced in the two Tables V.1 and V.2, the first one using schooling as a continuous variable, the second using various levels as dummy variables. Both sets of equation reveal a positive and significant effect of education on earnings in Ghana. But attention should be drawn to three important points brought out by these results.

Table 5.1 Basic Earnings function by Years of Schooling in Ghana.

Variables	1987	1991
Years of schooling	0.035	0.061
	(7.04)	(13.3)
Age	0.11	0.08
	(6.8)	(4.5)
Age-squared	−0.001	−0.007
	(−5.2)	(−3.1)
Log hours worked	−0.24	−0.34
	(−8.25)	(−7.6)
Female	0.11	−0.06
	(1.76)	−(1.04)
Other urban	0.09	−0.27
	(1.4)	(−4.4)
Rural Coastal	0.12	−0.12
	(1.2)	(−1.330
Rural forest	0.07	−0.22
	(0.8)	(−3.03)
Rural Savannah	0.16	−0.14
	(0.8)	(−1.26)
Constant	2.75	4.9
	(8.40)	(10.9)
R-squared	0.24	0.29
Sample size	765	1021

Source: Canagarajah and Thomas (1997)

Table 5.2. Earnings function by levels of education in Ghana

Variables	1987	1991
Below Primary	−0.07	−0.07
	−(0.58)	(−0.57)
Primary	−0.2	−0.02
	(−0.09)	(−0.1)
Middle	0.09	0.42
	(0.8)	(5.2)
Secondary	0.27	0.77
	(3.8)	(8.6)
Higher	0.87	1.18
	(7.4)	(10.8)
Age	0.11	0.09
	(7.4)	(5.3)
Age-squared	−0.001	−0.008
	(−5.7)	(−3.7)
Log hours worked	−0.29	−0.31
	(−10.4)	(−7.25)
Other Urban	0.13	−0.27
	(1.99)	(−4.3)
Rural Coastal	0.15	−0.08
	(1.5)	(−0.9)
Rural forest	0.05	−0.19
	(0.58)	(−2.5)
Rural Savannah	0.08	−0.18
	(0.8)	(−1.7)
Constant	3.23	4.73
	(10.3)	(10.9)
R-squared	0.24	0.27
Sample size	919	1140

Source: Canagarajah and Thomas (1997)

First, we see from table 5.2 that in both the years the returns to primary education is not significant. This is an important part of the educated labor market scene which will be commented on further below.

Secondly, the incremental coefficients (showing the percentage increase in earnings relative to the previous stage for middle, secondary and higher are .09, .19, and .60 for 1987 respectively and .40, .35 and .41 for 1991. We see that in 1987 the returns to post-primary stages show increasing returns to schooling, with large percentage gains only occurring at the level higher than secondary. By 1991 the labor market had changed to a condition in which all the stages of education beyond the primary offered equal percentage increase in earnings. An important element in this change was no doubt the squeezing of wage differentials particularly in the public sector. Although the data in this survey of 1991-2 do not reflect the effect of the across-the-board increase of civil service wages by 80 per cent, this type of salary hike would not change the picture, because its impact would be to maintain existing wage differentials in percentage terms.

Thirdly, the schooling coefficients of Table 5.1 show that there was a marked increase in the rate of return to education between 1987 and 1991. This is a reflection of the point already noted that at the latter date education at all levels above the primary were being rewarded equally, not just the highest level. This result might be an indication that the labor market was by 1991 recovering to the point of being sensitive to the acquisition of human capital. It is consistent with the result referred to in the last section that education was in 1991 accounting for a greater share of inequality in earnings than a few years earlier (see Table 3.4 above).

5.1 Public and Private Sectors

The results discussed so far do not treat the public and the private sectors separately. We need to turn our attention to this distinction since, within the class of wage earners, principles of wage determination could be expected to be quite different in these two sectors. Glewwe (1996) used the 1988-89 GLSS survey to study earnings functions separately for the two sectors. The standard OLS estimates yielded the result that the coefficient of 'years of schooling' were practically identical -- 0.0751 for the public employees and 0.0738 for private wage earners. But when selectivity of workers entering the two sectors were allowed for through two selection equations determining the choice between wage work and other work, and also between government wage and private wage employment, there were dramatic changes in the return to education. Two alternative methods of estimation yielded the identical result—that "in the government sector the returns to education drop to about 4-6 per cent, and in the private sector they appear to be zero" (p.274). Commenting on this result Glewwe wrote that it is difficult to believe that education had no impact on earnings unless one got a government job—that there were no return to education in private wage employment. Rather, Glewwe suggests one got this result because the quality of schooling had dropped so much in Ghana at this date, that 'years by education' by themselves did not produce significant earnings increment. The variation in the quality of schooling were probably more

important than those in the quantity of schooling. In the absence of any variable capturing the quality of schooling in the earnings function one was left with a non-significant coefficient for the education variable.

5.2 Quality of Education

It has been known for sometime from detailed analysis done in Latin America that when school quality varies widely across time and space, years of schooling may be a very imperfect indicator of human capital attained (Behrman and Birdsall; Harbison and Hamushek). The general model which emerges from these discussions is that the impact of education on earnings is best captured in a two-equation system. The first equation traces the determinants of earnings to human capital attainment, not years of schooling. The second equation attempts to estimate the level of human capital attainment as a function of both quantity and quality of schooling. Algebraically the two equations are as follows:

(1) $ln\ W = g(H, E, A)$ where W is wage, H a measure of human capital attained, E is experience, and A individual ability unrelated to H;

(2) $H = h(S, Q, A, B)$ where S is years of schooling (quantity), Q is quality of schooling, A is individual ability, and B is family background.

In this model the impact of schooling on earnings is spelled out as working indirectly through an enhancement of human capital attained, along with other factors. The total effect of schooling years on earnings can be determined by combining the partial derivatives from the two equations:

(3) $\partial ln\ W / \partial dS = \partial ln\ W / \partial H \times \partial H / \partial S$

To implement this model empirically, we need a measure of H, human capital attained. Glewwe (1996) in the work on the 1988-89 survey uses scores of 'cognitive skills' available in the data set. The survey data contained the results of three tests of 'cognitive skills' applied to a sub-sample of individuals in the 9-55 age category. These covered abstract reasoning (Raven's Colored Progressive Matrices), mathematics and reading (English) comprehension. The last two are used as measures of H, and the first as a measure of A in equation (1).

Turning to equation (2) above, in the absence of direct data which might measure school quality, Glewwe tries to control for variation in school quality by specifying interaction terms between years in school and the geographic region and age variables. "The former should control for variation in school quality across regions and the latter across age cohorts" (p.278).

In his estimation of equation (1) Glewwe finds that in the private sector reading skills have a significant impact on earnings, while in the public sector the mathematics score has a strong positive effect. Turning to the results of equation (2), "years of schooling alone is insignificant, but when interacted with age, Raven's score and

regional dummy variables, it has a strongly significant quadratic impact on reading and mathematics scores, the impact being stronger for those with higher school attainment" (p.380). These results, showing the significance of the interaction terms, reveal that schooling years work in conjunction with other factors. The interaction with Raven's score shows that more talented individuals benefit more from school years—as judged by the labor market. The interaction with age captures the secular decline in the quality of education. Persons who attended school many years ago were able to enhance their earnings per year of schooling more than recent cohorts. The result that the regional dummies, which are insignificant in themselves, show strong and significant variation in the attainment of reading and mathematical skills across regions, when interacted with years of schooling, point to the importance of regional difference in the quality of schools.

The total effect of education on earnings were calculated from theses estimated equations as shown in equation (3). The rate of return to school years, calculated at the mean value of both schooling and Raven's score was higher in the public but no longer zero in the private sector. In the former they ranged between 5.4 percent and 6.2 percent, and in the latter between 3.4 and 6.3. As already noted, the rates of return rise with age are higher in Accra reflecting the higher school quality in the capital city at all age groups.

5.3 Family Background, Private-Public Choice and Returns to Education

Canagarajah and Liang (1996) address a different set of issues in the study of private-public differences in the returns to education. They consider the labor market all together, including the self-employed, the private sector employees, and those employed in the public sector. We can estimate separate earnings functions for these three categories, but the resulting estimates might be biased because we are not allowing for the selectivity factors which govern the allocation of the workers to the three types of employment.

The authors propose a model in which parents' occupational and educational backgrounds affect the individual's relative employment opportunity in the different types of job. The selection equation is a multinomial logit estimate of sectoral choice in which the explanatory variables are education and age of the individuals, as well as the parental background factors, and regions of the country. The equation applied to the 1991-2 GLSS data set provided estimates of the expected sign for almost all the variables. Thus middle school and above education helped job-seekers enter the wage sector as opposed to self-employment, as did different kinds of diplomas and certificates from training. Using Accra as a benchmark, residence in other regions decreases the probability of entering the public sector, but increases the probability of self-employment.

Family background had a small but significant effect on the job-seekers' sectoral choice. In particular the parents' white collar occupation—clerical, professional or managerial—increased the probability of public employment. When the earnings

function was estimated correcting for the selectivity bias, none of the parental variables were significant in this equation. What is of more interest for the present discussion is that the returns to years of schooling were quite different from the uncorrected version of the earnings function, as follows:

Table 5.3. Coefficient of 'years of schooling' in earnings equation, 1991-92.

	Self-employed	Private employee	Public employee
OLS estimate	.028	.040	.039
Estimate in equation with correction	.030	.067	.017

Source: Canagarajah and Liang (1996), Tables 6 and 8. All the coefficients are highly significant.

The important result is that, after correcting for selectivity, the rate of return per year of schooling is found to be much higher in private employment. This is consistent with the changes in wage structure in Ghana discussed above. The recovery of the economy in the few years preceding 1991-2 had increased the importance of human capital in the market for wage labor in the private sector. At the same time the squeezing of wage differentials due to institutional factors in the public sector had, as already noted earlier, reduced the returns to education, particularly at the higher levels (see Canagarajah and Thomas (1997) and Dar et al, (1997)).

5.4 Trends in Child Labor and Schooling in Ghana

One of the major constraint's in Ghana's growth challenge has been the lack of human capital development. The enrollment rates have not been picking up fast and the future trend of human capital does not look optimistic; in fact it is claimed the slack private sector investments in Ghana might be a result of lack of skilled labor and lack of adequate human capital stock. The non-school attendance rates in Ghana are very high with gender disparities. 1992 GLSS data indicate that one in three girls and one in four boys do not attend school. The rural non-schooling is higher with 37 percent for girls and 28 percent for boys. "Ghana 2000" in its strategy for accelerated growth has argued for massive investment in primary education as a way of building necessary human capital for sustainable broad-based growth (World Bank, 1993). It is therefore important to understand the dynamics of household decision making as to whether to send children to school and/or work, to benefit from investments in education. If not, colossal public investments in education are not likely to get children into class rooms.

It has been shown that poor households in developing countries seldom find it viable to send their children to school; they are also in need of cash income. Hence parents do not send their children to school and allow them to work. This issue has been discussed in the context of Ghana by Canagarajah and Coulombe (1997) using GLSS

data. It is estimated that in 1992 around 28 percent of children between the ages 7-14 years were involved in child labor. The data show that of the total number of working children two-thirds were also going to school and 90 percent were involved in household chores. The table below shows patterns of child labor and school participation patterns by various socio-economic categories.

Table 5.4: Joint Labour Force and School Participation Rate (last 7 days), by gender, age, ecological zones, expenditure quintiles, socio-economic group and religion - 1991/92

	Work Only	School Only	Work & School	None	All
Gender					
Male	9.2	56.6	20.1	14.1	100.0
Female	9.4	51.0	17.3	22.3	100.0
Age					
7	4.7	56.2	7.4	31.7	100.0
8	6.7	59.1	11.4	22.8	100.0
9	6.1	57.5	17.0	19.4	100.0
10	8.8	55.2	20.2	15.9	100.0
11	8.2	56.3	23.6	11.9	100.0
12	11.5	51.3	22.6	14.6	100.0
13	14.0	46.1	28.3	11.6	100.0
14	16.4	47.1	24.3	12.2	100.0
Expenditure Quintile					
Lowest	13.1	46.4	15.5	24.9	100.0
Second	6.8	54.1	21.7	17.3	100.0
Third	10.5	53.8	18.6	17.1	100.0
Fourth	8.7	55.2	19.2	17.0	100.0
Highest	5.7	64.6	19.1	10.6	100.0
Socio-Economic Group					
Public	2.8	71.1	13.5	12.5	100.0
Wage-priv-formal	1.3	75.5	13.9	9.3	100.0
Wage-priv-informal	15.2	52.5	18.2	14.1	100.0
Self-agro-export	9.3	45.2	36.3	9.3	100.0
Self-agro-crop	15.3	35.4	24.7	24.7	100.0
Self-bus	3.4	74.2	9.0	13.3	100.0
Non-working	2.2	68.9	0.0	28.9	100.0
Religion					
Muslim	12.4	49.7	12.8	25.1	100.0
Catholic	6.1	59.9	21.7	12.2	100.0
Protestant	4.8	62.1	25.6	7.5	100.0
Other Christian	5.5	66.0	19.5	9.1	100.0
Animist	16.6	32.6	16.2	34.6	100.0
All	9.3	53.9	18.8	18.1	100.0

Source: Canagarajah and Coulombe (1997).

The authors use a bivariate probit model to understand the determinants of schooling and child labor choice simultaneously. Their analysis clearly shows that the human capital development challenge of Ghana and schooling decision of households are not independent of child labor. The probability of children's labor participation

declines and school participation increases with higher levels of household welfare. The high cost of schooling - both official and unofficial fees - pushes children into labor market to enable them to afford school or pulls them away from school as they can not afford it. The quality of education and its relevance to labor market needs to be given priority in future education reform to ensure that parents send their children to school. The current rates of child labor and non-school attendance are not conducive to meet Ghana's growth challenge for the twenty-first century.

6. Rural-Urban Earnings Difference

The subject of the last two sections was the nature and determination of labor earnings in the formal sector of Ghana's labor market. We now turn to the important topic of differences in the levels of earnings between the rural and urban labor markets. In the discussions of African labor markets this topic has been given the pride of places. The alleged bias towards the urban economy and the maintenance of labor earnings in the urban sector at a relatively high level have been singled out as one of the chief distortions in the functioning of labor markets in Africa—causing welfare loss both in terms of equity and efficiency (see, for example the long discussion of the literature in Jamal and Weeks).

6.1 The Pre-Crisis Economy

Unlike East Africa, Ghana was not distinguished by a spectacular rural-urban difference in income or labor earnings before the economy began its long slide downwards. An early report comes from Knight (1972) who presented data from a national sample survey of household expenditure survey conducted in different regions of Ghana in 1961-2. Some selected data from this source are given in Table 4.1. It is seen that consumption per household was highest in Accra—about a third higher than the hinterland rural areas. The rural-urban difference was somewhat lower when we look at smaller towns in the individual administrative regions and compare them with their rural hinterlands, and non-existent in the Volta and Western regions. The average size of households was lower in towns partly because of the greater proportion of single-member households in town. Thus the level of urban consumption per capita exceeded the rural level by as much as one half. Part of this difference was, of course, accounted for the difference in the cost-of-living between town and country. Knight made an attempt to estimate the latter using the data from the sample survey, and estimated that the urban price level was 112 per cent of the rural price level using rural weights, and 104 per cent using urban weights (Knight, Table 4, p.209). Thus both the extent of the nominal income difference in favor of the urban sector, and of the cost-of-living difference were quite small in Ghana compared to what was prevalent in other parts of Africa. In Kenya, for example, the urban-rural differential was as high as 3:1, or even 4:1, and the cost-of-living was estimated to have been 60 per cent higher (Mazumdar 1993). There were two reasons for this difference. First, although we have mentioned that single member households were more important in the urban economy of Ghana, the

urban labor market was never dominated by circulatory migrants with a high turnover of labor as in East Africa. Hence the massive increase in urban wages which took place in East Africa in the sixties driven by the desire to change the urban system from a migratory to a stabilized one was never necessary in Ghana. Secondly, the urban centers in Ghana were clearly not so differentiated from the rural ones as in East Africa. But this relatively modest differential was enough to sustain a significant stream of rural-to-urban migration through the sixties. "Between 1956 and 1967 modern sector non-agricultural employment grew on average by 3.3 per cent per annum whereas urban population grew at more than twice this rate" (Knight, p.214).

Table 6.1: Expenditure of Urban and Rural Households 1961-62

Expenditure per household (NC per month)	Urban	Rural	Urban (Rural= 100)
All regions			
Consumption of own produce	2.6	8.5	31
Other expenditure	34.2	19.0	180
Total expenditure	36.8	27.4	134
By region			
Accra	46.3		
Ashanti	41.3	35.6	116
Brong Ahafo	42.5	30.7	138
Eastern	36.2	31.1	116
Northern	23.4	17.1	137
Volta	33.7	33.3	101
Western	27.9	26.5	105
Expenditure per capita (NC per month)	9.0	6.0	150
Average size of household	4.08	4.54	90
Percentage of single member households	22.3	13.4	

Source: P.T.F. Golding, ' An inquiry into household expenditure and consumption and sale of household produce in Ghana.' Economic Bulletin of Ghana, 1962, No. 4 Tables 6 and 7.

Notes: The data relate to a two-stage stratified sample of 990 households with income under NC100 per month

6.2 The Course of Rural-Urban Earnings Differences during the Economic Decline

The decade spanning the years 1973 to 1983 in Ghana saw one of the most spectacular declines in economic fortune that any country has known. All sectors of the economy shrank in real terms. The output in the cocoa sector declined as producer prices declined—fueled by both the decline in world prices, and the domestic policies of the State marketing Board. The producer price had reached a peak in 1956, but declined from a level of around 140 to less than 20 in 1983. Because of the long gestation period in the planting of cocoa trees, cocoa output did not start its downward course until after 1965, but then followed the price index down. The combined effect was that the index of cocoa income in 1983 stood at a level which was one-seventh of the high point of 1960-61.

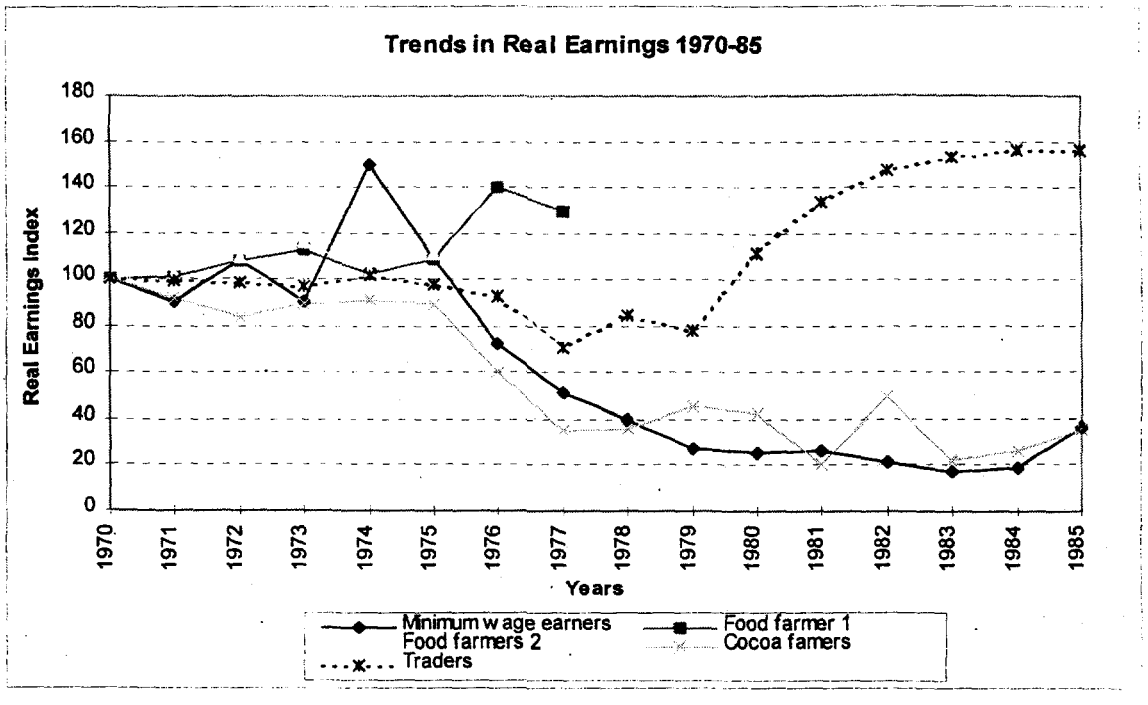
Cocoa, however, is only a part of the income of the rural peasants, and is moreover concentrate in the South of the country. How did the food sector behave during this period? Tabatabai (1988) has put together the record of eight major crops in terms of the annual growth rates of production, area and yield. His major conclusion is that there was hardly any statistically significant trend in yields, but production shrank with remarkable speed—cereals at an annual rate of 3.4 per cent for cereals, and of 4.7 per cent for starchy staples. Evidently this remarkable shrinkage of output was entirely due to a decline in acreage.

Tabatabai ascribes this decline in acreage—more pronounced in the South than in the Northern ecological region—to the large scale international migration of labor to neighboring countries which were experiencing a mini-boom triggered by the oil price increase. "It has been estimated that between 1974-5 when the exodus began, and 1981 some 2 million Ghanaians had left for Nigeria and Cote-d'Ivoire alone." (Tabatabai, p.718 quoting UNICEF, 1984, pp.165-66). Since employment in the "modern" or formal sector was maintained in the period under consideration (see above), much of the emigrant labor came from the traditional activities including agriculture. "Even if only half of the reduction concerned the agricultural sector, the decline in the agricultural labor force would have been of the order of 15-20 per cent between 1975 and the early eighties." (Tabatabai, p.721) While this labor shortage accounts for a decline in food production in the decade, it also implies that the decline in the real income of food producers was not as much as the output figures might tend to suggest. Not only were there fewer people to share in the total output in the farm sector, the natives left behind enjoyed substantial income augmentation through the remittance of the emigrants.

Relative real incomes of different groups in the urban and rural labor markets were also changed by sharp relative movements in different price indices during the general inflationary period. In particular, although the statistical series are somewhat incomplete after 1977, "the conclusion is inescapable that the underlying trend in real wholesale prices of food are at most steady, if not actually downward." (Tabatabai, p.715; see p.714 for more details) The way the divergent movements in the different price series affected the relative real incomes of different groups can be seen in the trends in real returns calculated by Tabatabai in which he deflates the nominal returns of each group by the index of consumer prices most relevant to each. These are portrayed in Figure 4.1.

The course of real earnings of formal sector wage earners, as we have seen, mirrors the downward trend in the real wage of minimum wage earners, both of whom are to be found mostly in the urban areas. This is balanced by the increase in the real income of traders, many of whom are also found in the urban economy. The basic reasons for the increase in real earnings of traders over this period are two-fold: first, the deterioration of infrastructure meant that the cost of marketing went up; and secondly, the shortage of marketed goods—both imported and domestically produced—meant that important sources of "rent" opened up for traders. Within the rural sector, cocoa farmers and the food producers in the South suffered relative to the farmers in the North. Because of the mixed nature of the impact of the economic decline on different

Figure 4.1 Trends in real return (1970-85) (1970=100)



Source: Tabatabai Figure 3. The data are presented in Tabatabai, Table 9.

groups, it is difficult to be confident about the course of rural-urban income difference over this period. But in so far as food producers are the most important part of the rural economy, and wage earners constitute a sizable section of the urban labor force, it is likely that real income per head, on the average, probably had declined in the urban areas relative to the rural, and indeed could have been lower in the former at the end of the period. Official Census data are consistent with this conclusion. They show that between the two Censuses of 1970 and 1984, urbanization had slowed down considerably, and the share of the three largest cities in total population had remained largely the same. (Tabatabai, table 7, p.719).

6.3 The Rural-Urban Differential After the Recovery

The agricultural sector in Ghana suffered a dual shock in 1983, as the migrants to Nigeria were expelled back into the country, and the country experienced its worst drought in history. "But once the returnees settled down in the rural areas and started farming activities, and when the rains also returned in 1984, the situation improved considerably. The index of food output per capita rose from 80.9 in 1983 to 114.6 in 1984, 105.7 in 1985 and 113.7 in 1986 (FAO Production Yearbook, 1987, p.47)" (Tabatabai, p.720).

With the successful implementation of the ERP the economy turned around in the years following 1983. Exports, cocoa output, manufacturing and non-tradable services all showed significant real growth. We have detailed information about relative incomes from the GLSS after 1987.

Table 6.2: Rural-Urban Differences in Income, 1987

	Accra	Other Towns	Rural
Mean			
Household Income	194.2	212.1	236.7
Income per Earner	165.7	146.8	140.0
Income per capita	62.3	59.2	59.6
Income per AEU	82.6	83.0	84.9
Median			
Household Income	122.9	141.4	160.3
Income per Earner	109.9	95.1	92.3
Income per capita	36.9	38.2	38.5
Income per AEU	52.5	56.0	61.1

Source: GLSS 1987

The differences in incomes between urban and rural areas , as reported in 1987, are summarized in Table 6.2. We differentiate between Accra and other urban areas. It is seen that income per earner is somewhat higher in other towns and even higher in Accra, though the extent of the difference is almost certainly not sufficient to compensate for the cost-of-living difference between town and country. But even the nominal difference is reversed when we consider household incomes. The data show the perfectly understandable fact that rural households have more earners, because of the greater opportunity of secondary members (wives, children etc.) to participate in income-earning opportunities in and around the farm. When we move to the statistics on income per capita, the levels of income in nominal terms is almost the same in the three sectors—showing the higher burden of dependency of rural households. This is a fairly general phenomenon in developing countries, reflecting the greater incidence of single member or smaller households in the urban setting. In fact, because of the limited effect of circulatory migrants in Ghana, the quantitative importance of this effect is much

smaller in Ghana at this date than what has been observed in many other countries (cf. Kenya, Mazumdar, 1993).

Table 6.3: Rural -Urban Differences in Expenditure, 1991-92

(Thousand cedis)

	Accra	Other Towns	Rural
Medians			
Expenditure per Earner	660	620	447
Expenditure per capita	256	184	144
Expenditure per AEU	358	276	228

Source: GLSS 1992

Table 6.4: Rural -Urban Differences in Income, 1991-92

(Thousand cedis)

	Accra	Other Towns	Rural
Means			
Household Income	571.4	498.1	462.2
Income for Earners	520.8	438.3	370.9
Income per capita	206.5	143.1	129.5
Income for AEU	520.8	438.3	370.9
Mediums			
Household Income	388.9	328.3	322.1
Income for Earner	348	276.9	256.7
Income per capita	136.2	84.2	81.3
Income per AEU	186.3	127.2	125.6

Source: GLSS 1987

Measurement of income in terms of individual welfare can be refined by considering income per adult equivalent units (measured according to the scales worked out by Deaton) to take account of varying proportions of household members of different ages. When we compare this measure among the three sectors, the rural areas emerge with a significantly higher level of nominal income than the other urban areas, and even higher than Accra. It will be seen that this pattern of difference is noticed more strongly when we consider medians rather than the means. *We conclude that in real terms the average income levels in the rural areas in 1987 were higher, perhaps by as much as 30 per cent compared to Accra, and by a smaller amount relative to other towns.*

We concluded earlier from indirect evidence on the relative changes in real income of different groups that at turning point in the fortunes of the Ghanaian economy in 1983, rural income levels were probably higher than the urban. It is seen that although recovery had improved incomes in both sectors, rural incomes were still higher after four years of the ERP.

Table 6.4 presents the summary statistics of income levels in 1992 from the GLSS 3. It is seen that the situation is changed at this date. All the indices show much higher incomes in urban areas—and higher in Accra than in other towns. The income per earner in Accra is a third higher, and income per capita nearly 50 per cent higher than in rural areas. This is a finding of major importance, and to see its robustness we compare the income relatives with the statistics on expenditures from the same survey. Researchers have sometimes maintained that expenditure figures are more reliable than income data in household surveys as they give a better measure of permanent income. The indices presented in Table 6.3 corroborate the conclusions from the income relatives given earlier.

Table 6.5: Dispersion of Income 1987-1991

	Accra	Other Towns	Rural
GLSS1(1987) Standard deviation			
Household Income	287.430	274.250	354.073
Income per capita	82.945	77.588	107.690
Income per AEU	113.517	100.035	127.928
Income per Earner	187.696	188.929	199.129
GLSS3 (1991) Standard deviation			
Household Income	622.456	633.112	475.932
Income per capita	235.581	199.547	172.763
Income per AEU	266.569	230.138	183.478
Income per Earner	575.250	571.772	404.939

Source: GLSS1 and GLSS3

Reference must be made at this point to the findings in the Extended Poverty Study of the World Bank. The poverty line in this case was defined as two-thirds of mean household expenditure per capita in 1988 for the country as a whole, and expressed in constant May 1992 Accra prices. The strong conclusion of this work was that between 1988 and 1992 "poverty (as represented by both the headcount and poverty-gap ratios) declined steeply between 1988 and 1992 in all areas except Accra." (World Bank 1995, p.42). This trend is reconcilable with the evidence of widening income differential between Accra and the rural areas only if the degree of inequality in the distribution of income increased in Accra relative to the rural areas in the 1987-92 period. This is exactly what the statistics in Table 6.5 show, if we measure the degree of inequality of income by its standard deviation. Although income in the capital city grew relatively to

the rural areas and other towns, there were large numbers at the bottom of the distribution who fell behind.

6.4 Factors Affecting Rural-Urban Differences in Trends in Income and Poverty

What can we say about these trends in income growth and poverty reduction in terms of the changes in the relative incomes of different socio-economic groups. The following tables indicate the distribution of poverty by urban and rural areas and the various sources of income by poverty groups. It is clear from Table 6.6 that rural poverty has declined between 1987-92 although it is still high, while the contribution of urban poverty to national poverty is on the rise. All of the urban increase has come from the dramatic increase in poverty in Accra. The depth of this poverty in Accra has also dramatically increased by more than three fold. Table 6.7 clearly shows that the poor obtain an increasingly large share of their income from non-farm self employment, a sector which saw substantial growth, resulting in substantial declines in rural poverty.

Table 6.6.: Distribution of Poor by Urban and Rural Areas

Sector	Population share		Incidence of Poverty		Depth of Poverty		Contribution to National Poverty	
	1987-88	1991-92	1987-88	1991-92	1987-88	1991-92	1987-88	1991-92
Urban	34.2	33.2	27.4	26.5	8.1	6.8	25.3	27.9
Accra	8.3	8.2	8.5	23.0	1.7	5.6	1.9	6.0
Other urban	25.9	25.0	33.4	27.7	10.1	7.1	23.4	22.0
Rural	65.8	66.8	41.9	33.9	13.8	8.7	74.7	71.9
All	100.0	100.0	36.9	31.5	11.9	8.1	100.0	100.0

Source: World Bank, 1995a

Table 6.7.: Source of Household Income by Poor and Non-poor

Income From	Poor		Non-Poor	
	1987-88	1991-92	1987-88	1991-91
Wage employment	10.0	10.9	19.8	16.8
Farm Self-employment	60.4	52.9	47.3	42.0
Non-farm Self emp	19.5	25.7	21.3	30.2
Actual and Imputed rent	2.6	3.2	2.0	2.0
Remittances	6.4	6.5	6.7	7.3
Other	1.1	0.7	2.8	1.8

Source: World Bank, 1995a

6.4.1 The Absorption of Labor

Table 6.8 gives the statistics of the changing absorption of labor over the period under consideration. It will be seen no massive shifts in the pattern of employment took place. The share of employment in self-employed agriculture, after a slight dip between 1987 and 1988, seems to have come back in a strong way, particularly in the rural areas. There has been some shrinkage in government employment, but the decline in its share is confined to the rural sector, and perhaps represents the massive reduction of employment in cocoa boards. The major change in shares is the decline in private formal (wage) employment in urban areas which is balanced by the increase in the share of self-employed business and non-working. Evidently the latter two categories harbor a good deal of low income labor in the urban economy.

Table 6.8: Employment by Urban and Rural Sectors (figures in percent).

	1987			1988			1991		
Sector	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Government	9.,67	23.87	14.06	10.21	23.77	14.09	8.70	23.49	12.97
Private-formal	2.93	14.15	6.92	4.70	14.04	7.89	2.45	9.10	4.51
Private-informal	2.43	5.22	3.37	3.03	5.58	3.87	2.71	6.36	3.91
Self-employed agriculture	68.71	14.06	49.24	59.88	11.84	43.57	64.34	11.98	47.0
Self-employed business	15.92	39.17	21.54	21.93	42.39	28.80	20.41	43.24	27.46
Non-working	0.34	3.54	2.14	0.25	2.37	1.74	1.39	5.82	4.13
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Canagarajah and Thomas (1997); derived from GLSS 1,2 and 3.

An attempt has been made by the Institute of Social and Economic Research in Ghana to estimate the size of the employment in the informal sector in Ghana by the residual measure. According to this exercise the non-agricultural labor force increased by 50 percent between 1980 and 1990, but employment in the formal sector declined significantly. The proportion of the labor force which must have been absorbed in the informal sector (after allowing for registered unemployment) increased from 36 to 45 per cent of the total labor force (i.e., including both the agricultural and the non-agricultural).

Over a longer term perspective the ISSER calculation suggested that the proportion went up from 25 per cent in 1960 to its 1990 level of 45 per cent.

6.4.2 The Formal-Informal Earnings Difference in Urban Ghana

The crucial factor here seems to be the formal-informal earnings divide which has already been analyzed in Sections 3 and 5 above. Real wage recovered quite strongly in the public sector after the ERP (and in fact there has been a further large increase in July 1992). Mean wages of these workers were above the earnings of private formal sector employees in large firms, and considerably above those finding employment in micro and small enterprises. The earnings of some of the self-employed in petty businesses could be as low as and, indeed below the low income of informal sector wage earners. It is clear that the self-employed sector must be characterized by a wide dispersion of earnings and it is this which has contributed to the increased inequality of income in the urban areas relatively to the rural.

6.4.3 Income Growth and Poverty Reduction in the Rural Economy

The analysis of the GLSS surveys show that poverty measured by the headcount ratio fell sharply for both cocoa farmers and food producing farmers between 1987-8 and 1991-2-- from 42.7 percent to 32.0 percent for the former and from 42.8 percent to 37.2 percent for the latter (World Bank 1995a, Table 3.4,p.28). The work also suggests that the poverty reduction is dominated by the growth of income. Distributional changes by themselves would have, if anything, increased the poverty ratio in most regions of rural Ghana (Jones and Xiao, 1995, Table 2, p.6). However, it has been noted that this widespread reduction in poverty (as measured by the proportions in the distribution of expenditure below the poverty line) has not been accompanied by matching increase in agricultural production or producer income. National accounts estimates suggest that agriculture performed below its potential after the initial spurt at the beginning of the ERP, and has been a constraint on accelerated growth since then (see table 5.1 World Bank 1995b, p.39).

The slow-down in the recovery of cocoa production is clearly an effect of a downturn in the producer price of cocoa—and hence accentuates the deceleration in the growth of income of cocoa producers. Alderman (1994) estimated that payments to cocoa farmers increased from 5 billion cedis in 1984 to 13 billion in 1987-8 (in constant prices), but this was a one-time shift largely deriving from the depreciation of the cedi in the early years of adjustment. Since then world prices of cocoa have been declining, and have not been matched any further exchange rate depreciation.

We have, however, already noted that cocoa is only a small part of the sources of agricultural income in Ghana. For the non-export agricultural sector producer prices are not affected by the exchange rate, or by other aspects of government price policy. Unlike many other African countries food prices are not subsidized in Ghana. Supply-and-demand conditions in the domestic market determine real producer prices—and in

any case a good deal of the output of food farmers is non-market. The level of income of this group varies mostly with the level of production. However, "uncertainty surrounds the robustness and reliability of the national accounts estimates of agricultural output of Ghana. Government crop production statistics give a more positive account of agricultural production during the ERP years" (World Bank 1995b, p 40). Food crop production, measured in terms of calorie equivalents of starchy and cereal crops seem to have increased 60 per cent between 1987-9 and 1991-2 (ibid, Figure 3.2). In sum, the agricultural production and price data are consistent with the decline in rural poverty suggested by the GLSS data sets, but seem to suggest that the latter might have exaggerated the decline.

The World Bank Report (1995a) has, however, drawn attention to another source of income growth and poverty reduction which might hold the key to the clarification of the factors involved. The GLSS data show that for the rural households as a whole the proportion of income accruing from non-farm self-employment increased from 14.8 percent in 1987-8 to 21.5 percent in 1991-2 (ibid, table 3.3, p.28). The growth in non-farm activities during the recovery of the economy—involving increase both in trade and non-food commodities—could indeed have been a powerful source of poverty reduction.

6.4.4 Absolute Levels of Poverty in the Rural and Urban Sectors and Labor Migration

While the work reported in the Extended Poverty Studies (World bank, 1995b) show a decline in poverty in the rural areas, and an increase in the capital city, it still maintains that in 1992 the absolute level of poverty was much higher in the rural areas. The poverty ratio was reported to be 23.0 percent in Accra, 27.7 percent in other urban areas, and varied from 28.6 percent to 38.3 percent in the different rural regions.

Table 6.9: Net Migration Flows (percent)

	(1) Up to 1970		(2) Up to 1987		(3) 1982 - 1987	
REGION	Destination	Origin	Destination	Origin	Destination	Origin
Western	21.1		74.0		39.0	
Central		22.4		11.0		6.8
Accra	46.5			15.0		57.6
Eastern		17.0		3.0	27.1	
Volta		28.9		31.0		15.3
Ashanti	12.3		13.0		13.6	
Northern & Upper		31.8	13.0		20.3	
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Beaudry and Sowa (1994): (1) Ewusi (1984); (2) and (3) Authors' calculations from the GLSS.

Evidence from the pattern of migration flows cannot really provide firm conclusions about the difference in the incidence of poverty. The absence of significant movement of labor from the rural to the urban economy need not necessarily imply that the poverty ratio is no worse in the latter. Migrants may respond to the expectation of employment *a la* Harris-Todaro, or to the expectation of earnings growth. Alternatively, there might be serious impediments to the movement of labor due to economic or social barriers. On the other hand the existence of significant urban-to-rural migration would suggest that there is prima facie evidence of higher incomes, and hence lower incidence of poverty in the urban sector.

We have seen above that rural-urban migration was an important part of the economic landscape of Ghana in the years before its decline. Beaudrey and Sowa (1994) have put together data on net migration (i.e. inflow minus outflow) for different regions and periods. They are reproduced in Table 6.9.

Column (1) of the table indicates that prior to 1970 46.5 percent of net migration was directed towards Accra. The next two columns show that the pattern of migration was completely reversed in the 1980s. Instead of being a region of net inflow, Accra has become the major source of migrants. Between 1982 and 1987, net migration out of Accra accounted for almost 60 percent of net outward migration in Ghana. The main destination migrants has become the Western region, which is the region of expanding cocoa production. For some purposes information on the volume and pattern of gross migration might be useful. We produced tabulations for such migration as it took place over the last three years prior to the surveys of 1988-89 and 1991-92. These data are reproduced in Table 6.10 below.

Table 6.10: Migration between Urban and Rural areas in last three years, 1988-89 and 1990-91

	1988-89	1990-91
Did not migrate	78%	90.2%
Migrated from Rural areas	5.8%	3.9%
To Accra	0.4	0.2
To Other Urban areas	0.9	0.6
To Rural Areas	4.5	3.1
Migrated from Other Urban areas	14.5%	4.8%
To Accra	1.8	0.7
To Other Urban areas	3.6	1.6
To Rural Areas	9.2	2.5
Migrated from Accra	1.7%	1.1%
To Accra	0.5	0.5
To Other Urban areas	1.0	0.6

Source: Authors' estimates using data for GLSS 1 and GLSS3.

While comparisons between the two surveys are somewhat hampered by the apparently more liberal definition of migration in 1988-89 survey, comparing the relative proportions among those who did migrate may still be possible. In both years there is very little migration from rural to urban areas—most migrants from rural areas went to other rural areas. What is even more interesting is that rather more than half of the migrants from urban areas went to the rural sector, and only a negligible fraction went to the capital city. Ghana had a remarkable experience among developing countries in actually showing "deurbanization" in this period. Overall the 1988-89 survey found that 63.7 percent of the population was rural, but in the 1991-92 survey this proportion had gone up to 65.2 percent.

The recent evidence on migration flows thus shows that, in the groups which are most generally prone to migrate, the income levels in town, in real terms are not perceived to be higher than in the rural areas. It is consistent with the finding that the incidence of poverty is increasing and is probably higher in Accra than in the rural economy in 1992.

7. Conclusions and Recommendations

7.1 The Future of Labor Absorption in Ghana

The slow-down and, perhaps reversal, in the rural-to-urban flow of labor is symptomatic of a basic shortcoming in the economic recovery of Ghana—viz., the inadequate growth of the productive sector in the non-agricultural economy. The rate of growth of GDP in real terms, although slowing down a bit in the 1990-95 period, has still been reasonably adequate at an average of 4.3 per cent. (It had been fully one percentage point higher in the 1985-90 period). But much of this growth has been fueled and led by the services sector. According to the National Accounts this sector has surpassed agriculture as the major contributor to GDP—since 1992 its share has exceeded 46 per cent. There are several positive aspects to the growth in the services sector. Government services no longer dominated the growth in services, in spite of the sharp increase in wages particularly in 1992. Growth has been strong because of the relatively strong performance in the major sub-sectors like tourism, communications and financial services. Some part of this growth can be directly traced to liberalization and the strengthening of private banking and other service activities. It has also been noted that the restoration of agricultural production to a somewhat higher level has encouraged the growth of off-farm trading activities. However, it is arguable that some of this increase in service sector incomes is a once-for-all adjustment to the recovery and cannot be sustained at this growth rate without commensurate growth of the production sectors—in agriculture as well as in non-agriculture.

In this connection the recent experience of the manufacturing sector in Ghana is a matter of concern. The immediate impact of the ERP was encouraging as the growth

rate of output in this sector rebounded strongly to very high levels. In the period 1984-88 the growth rate for the industrial sector as a whole was 11.2 percent per annum, while manufacturing per se registered a growth rate of 12.7 percent . But in the period 1989-94 manufacturing faltered to a growth rate of only 2.3 percent . Only the mining sector continued on a steady growth path. Evidently, the measures at stabilization and liberalization have not been sufficient to put the industrial sector on a path of sustained growth. The devaluation of the currency did improve the potential competitive position of this sector, as did the balance of payments constraint on the supply of essential inputs. But we have seen the real exchange rate has increased in recent years both due to higher inflationary trends and the inflow of capital, eroding much of the benefits of the initial devaluation. As far as the domestic market is concerned constraints exist both on the demand and the supply side. Recovery of incomes has not been sufficient to provide strong demand for industrial goods. On the supply side high cost of credit, outdated equipment which cannot be replaced because of a lack of adequate internal savings, the inefficiency of state-run enterprises are some of the basic problems which supplement the major labor market issue of deficiency of skilled labor in the economy.[3]

We have noticed above that returns to higher education are quite high in Ghana, particularly at the university stage. But this reflects the relatively high wages in government services—which have been augmented by recent wage hikes. Other studies have pointed to the serious deficiency of technical and vocational education in Ghana's education and training system (see Lal et al, 1994 in particular). The wrong composition of post-primary education is one of the factors accounting for the low incremental return to secondary education noted in Mazumdar (1994) compared to some other African countries.

Employment trends have mirrored the deficiency of the output growth path in industry. Since 1987 every year has recorded an absolute fall in industrial employment. We have seen that while employment in the public sector has shrunk to some extent, the decline in formal private sector employment has been more marked. The recovery of real wages in the latter has increased the efficiency of labor. Labor productivity has also increased because of an increase in capital utilization. But output growth has not been nearly sufficient to compensate for this increase, and bring about a net increase in employment in the formal industrial sector.

The net result has been that the growing labor force which could not be absorbed productively in agriculture has spilled over in service activities, and in the informal sector generally. The latter contains micro enterprises manufacturing simple products as well a variety of petty trades and businesses. Often the distinction between repairs and new production is blurred in this sector, and so is the demarcation between services and manufacturing. The informal sector performs an essential function of job creation and increases the welfare of both producers and consumers. Not only does it use the limited stock of fixed capital more efficiently by combining it with a larger amount of labor, but it also economizes the need for working capital by bulk breaking, producing and selling in small lots and reducing the life span of durable goods. The marginal product of labor

[3] Refer to Annex 1 for a detailed discussion on accounting for growth in Ghana and a discussion on the role of labor in Ghana's economic growth performence.

in this sector cannot by any means be considered to be near zero. But it has a low positive value in keeping with the low wages of the labor used in the sector, and the low income of the customers it serves. Thus the large informal sector is a symptom of an economy with a low level of equilibrium income whose potential for growth is weak.

Labor force growth is high in Ghana. ILO sources estimate that the growth rate of the labor force which in the 1980s averaged about 2.7 percent will exceed 3 percent per annum in the late 1990s (United Nations 1990/91 Part 2). Very little is known about the potential for labor absorption in the agricultural sector of Ghana. It is clear from the discussion reported above that the large international emigration of labor in the seventies had led to a significant fall in agricultural output, and equally the return migration of labor in the early eighties was easily absorbed in agriculture, and was indeed accompanied by an increase in output. Thus over the range of the production function covered by this degree of change in the labor force, the marginal product of labor is seen to have had a distinctly high positive value. But it is not known what the value of the marginal product of labor would be if there is a significant increase in the labor to land ratio. The importance of cash crops, and particularly cocoa has declined in the agricultural economy as the international price of cocoa has fallen. Thus much depends on the growth of the food sector and the nature of technological progress in it. An important consideration in this connection is that the growth rate of the food sector will depend a great deal on the extent and composition of public investment.

The development of the smallholder sector requires improvement in a whole array of factors including limited availability of technological packages, poor delivery of inputs, weak agricultural services, limited availability of credit and inadequate infrastructure. While some of these deficiencies require diversion of effort from weak public institutions to private providers (e.g., supply of fertilizer and seeds), some cannot do without active public participation. This is particularly true of extension services and rural infrastructure including road systems. Unlike manufacturing, where demand conditions and supply of skilled labor might be binding or additional constraints to output apart from investment, agricultural output is likely to be directly responsive to the level of effective public investment. In the absence of major shifts to mechanization—which seems unlikely in the existing technological scenario—employment in agriculture could be expected to increase with production. A greater effort at increasing the investment directed to the agricultural sector would seem to be the surest way of increasing the prospects of labor absorption in the medium term.[4]

While something could be achieved by changing the composition of public investment, the objective would be difficult to meet if over-all investment ratios remain low. We have noted in the discussion above that the over-all investment ratio, after recovering sharply in the eighties has stagnated in the nineties. What is more, the attempt to raise the public investment rate has been at the cost of private investment. In developed economies, if investment rates are seen to have reached a ceiling below the

[4] See Annex 2 for a discussion on alternative growth and poverty scenarios for Ghana for the period 1992-2000. The results clearly reveal the importance of accelerated agricultural growth for sustainable poverty reduction.

level which is considered inadequate for sustainable growth, policy recommendations would veer towards attempts to reduce the share of wages in the economy (on the assumption that savings propensities of wage earners are lower than those of the other groups). But in a developing economy like Ghana's the wage sector is a small part of the national economy. Furthermore, it has been argued above that during the period of the sustained decline of wages in the seventies wages might indeed have fallen below the wage-efficiency point at which wage cost per unit of effort are minimized. This is particularly true in the public sector where the absence of profit-maximizing employers imply that there is nothing to prevent wages from falling below this threshold. For both these reasons wage reduction per se is not the route through which the goal of lifting the investment rate to a higher plateau has to be pursued.

The recent macro-economic experience of Ghana suggests that the mechanism through which domestic savings and investment rates are reduced, or at any rate constrained, is the attempt by the public sector to capture a larger share of the national income than it can effectively command through fiscal measures of resource mobilization. The resulting inflationary pressure reduces both private and public savings rates in real terms, and is ultimately self-defeating. If public savings rates cannot be raised through the resource mobilization, the only way to increase investment in the agricultural sector is through the changes in the composition of public spending.

It is in this context that the labor market consequences of lifting public sector wages, particularly the 1992 hike to the tune of 80 per cent has to be considered. At first glance the distortionary effect on the allocation of labor might be considered to be severe. We have shown that the average wage in the public sector is significantly higher than in the private—and even higher than wages in the large corporate firms in manufacturing, after controlling for measurable human capital characteristics. But it was also noticed that wage levels in the public sector had only just reached the level of 1970 in real terms—and there had been considerable erosion of real wages in the public sector, by as much as one-third, in the decade of the sixties. The long period of decline of real earnings of public sector workers had by all accounts resulted in severe fall in the efficiency of public services. It is easy for some people to argue that restoration of the living standards of civil servants to acceptable levels is a pre-condition of the creation of an efficient government apparatus without which necessary public investment of the type discussed can hardly be successful. It might be objected that profit maximizing private entrepreneurs, particularly in the large firms would recognize the lowest level of efficiency wage, and to the extent that public wages are higher, we could conclude that the latter are too high even from efficiency considerations. This argument is not completely convincing. We have seen that the private manufacturing sector has not been doing too well in terms of capacity utilization and profitability. It has been subjected to much uncertainty, not the least of which is the problem created by large and fluctuating rates of inflation, and hence the real exchange rate. It would be too unrealistic to assume that private entrepreneurs would be able to recognize and establish a stable level of efficiency wage in this environment.

A second stance in the distortionary effect of public sector wage policy stresses the "ripple effect" of high public wages on the wage levels in formal sector private firms. The detailed analysis of the manufacturing wage structure in Section 4 showed that such a view of institutional effects on private sector wages is incorrect. We do not see a two-tier labor market in which firms above a certain size have a higher plateau than firms below this size. Rather there is a continuous increase in wages—net of measurable skills – with firm size. It is thus much more likely that the higher wages observed in small-medium and large firms compared to micro-enterprises is much more likely to be due to the combination of economic factors discussed in the analysis—a mixture of the inelasticity of supply of firm-specific skills, efficiency wage and higher productivity and profit sharing by large mechanized firms.

In our view the more important aspect of public sector wage policy has to do with the problems of fiscal policy which it poses. As long as the public sector wage bill remains a sizable part of government expenditure an increase in wage levels not compensated by reduction in employment will create strains in the budgetary balance and will defeat the most important instrument of increasing the growth rate of employment—viz. higher levels of public investment in agriculture. It is possible that a vicious circle is complete. Higher wages in the public sector might be necessary to increase efficiency without which productive public investment is not possible. But if the government is not willing and/or able to reduce public employment, and is further unable to alter the composition of expenditure to provide more finance for agriculture related public investment, a high wage public policy will merely fuel inflationary pressures reducing the real investment ratio even further. The only way out of this vicious circle, if it exists, is a larger infusion of foreign and private investment, supplemented by corrective monetary policy, than has been seen so far.

7.2 An Agenda for Future Research

The recent analytical work, including this paper, has set the stage for an in-depth inquiry into the dynamics of labor markets and poverty and their future prospects. The existing work clearly shows the need for us to understand the current trends in economic growth and their implications for employment generation and poverty reduction. We list a few such issues below for future research:

- We should be able to use the GLSS data sets to study both the distribution of earnings and the distribution of household incomes of public sector employees relative to other groups and the changes between 1987 and 1991. It might also be interesting to simulate the effects of the 1992 wage hike in the public sector on the distribution of earnings/income for 1991. The GLSS data set might be utilized to study the difference in earnings between the self-employed and the employees, and the change in the differential between 1987 and 1992.
- More detailed work on earnings inequality in selected socio-economic groups in urban and rural areas might be possible utilizing the GLSS for these years.

- Analysis of the GLSS data will enable us to shed further light on the earnings difference between the formal and the informal sector, and between different types of the self-employed.
- A topic of major importance which needs to be investigated from the price and household budget data available in the GLSS is the difference in cost-of-living as it prevails between the different sectors.
- It is quite clear that the private sector employment has been dismal, but very little is known of the dynamics of private sector investments and employment opportunities in Ghana. This is an area which needs further inquiry.
- We noted that growth in non-farm self employment has resulted in increases and diversification of rural incomes, but very little is known of their long term potential for employment and income generation of specific activities. This will facilitate the understanding as to what policies will facilitate towards lifting the millions of poor in rural Ghana.
- It is pertinent that we inquire further and understand the internal dynamics of reform, producer and consumer price behavior and shifts in income sources of rural poor.
- The informal sector has been absorbing large amounts of labor from both urban and rural Ghana. It is not clear whether these employment opportunities are lucrative. Given the worsening trends of poverty in Accra, it is essential that we understand the dynamics of this sector in general and those subsectors which are currently providing employment opportunities to the urban poor.

REFERENCES

Alderman, Harold,. 1994. 'Ghana: Adjustment's Star Pupil?' in David E Sahn (ed) *Adjusting to Policy Failure in African Economies*, Cornell University Press: Ithaca.

Alderman, Harold, Sudharshan Canagarajah and Stephen Younger. 1996. 'A comparison of Ghanaian civil servants' earnings before and after retrenchment'. Journal of African Economies, Vol. 4 , No.2, pp. 259-288.

Appleton, Simon and Paul Collier. 1990. 'Agriculture and the Macro-economy: consequences of negative external shocks in Ghana and Cote d'Ivoire, 1978-87. *World Employment Program Working Paper #10-6/WP 103. ILO, Geneva.*

Beaudry P and Sowa N.K, 1994, "Ghana", in *Labor Markets in an Era of Adjustment*, edited by Horton, Kanbur and Mazumdar, EDI Development Studies, World Bank, Washington DC

Canagarajah, Sudharshan and Minsong Liang. 1996, "Family Background, Segmented Labor Markets and Educational Attainment in Ghana", mimeo, World Bank

Canagarajah, Sudharshan and Kumar Govindan. 1996, "Accounting for Growth in Ghana: A Non-Parametric Analysis", mimeo, World Bank, Africa Region, Washington DC.

Canagarajah, Sudharshan and Saji Thomas. 1997a. "Ghana's Labor Market 1897-92". *World Bank Policy Research Paper 1752*, World Bank, Washington DC.

Canagarajah, Sudharshan and Saji Thomas. 1997a. "A Note on Growth and Poverty in Ghana: Some Simulation Results". *mimeo*, Africa Region, World Bank, Washington DC.

Canagarajah, Sudharshan and Harold Coulombe. 1997, "Child Labor and Schooling in Ghana", paper presented at the Symposium on "*Child Labor in Africa*", World Bank, May 1997

Commander, Simon and Cecilia Uzag. 1994. 'What seems right and what seems wrong with Ghanaian labor markets', *The Economic Bulletin of Ghana*, New Series,1,1, 129-141.

Dar, A., Z. Tzannatos, S. Canagarajah and S. Thomas. 1997. 'Labor Earnings and Inequality in Ghana: Evidence from the LSMS 1987-8 and 1991-2.' *Processed,* Africa Region, World Bank, Washington DC.

Ghana Statistical Service 1996, *Measuring Informal Sector Activity in Ghana*, Proceedings of a Ghana Statistical Service/Overseas Development Administration Workshop: Accra, January 1995

Glewwe, Paul 1996 "The relevance of standard estimates of rates of return to schooling for education policy: A critical Assessment", *Journal of Development Economics*, Vol. 5, pp. 267-290.

Hart, K (1973) "Informal Income Opportunities and Urban Employment in Ghana", *The Journal of Modern African Studies*, Vol. 11, No 1, pp. 61-84.

Institute of Social, Statistical and Economic Research (ISSER). 1995. *The State of the Ghanaian Economy in 1994*. University of Ghana, Accra.

Jones, Christine and Xiao Ye, 1995, "Accounting for the Reduction in Rural Poverty in Ghana 1988-92", *PSP Discussion Paper Series No 84*, World Bank, Washington DC.

Knight, John B. 1972. 'Rural-urban Income comparisons and Migration in Ghana', *Bulletin of Oxford University Institute of Economics and Statistics,* 34,2.

Lal, Sanjay. 1994, *Technological Change in Ghana.*

Leechoor, Chad. 1994. 'Ghana: front-runner in adjustment', Chapter 4 in *Adjustment in Africa: Lessons from country experiences,* edited by Ishrat Husain and Rashid Faruque. World Bank, Washington DC.

Mazumdar, Dipak. 1976. "The Urban Informal Sector", *World Development*, Vol. 4, No. 8, pp. 655-679.

Mazumdar, Dipak. 1993. Wages and Employment in Kenya. *Processed.* Africa Region Chief Economist's Office. The World Bank. Washington DC.

Mazumdar, Dipak. 1994. The Structure of Wages in African Manufacturing. *Processed.* Background Paper for the World Development Report of 1995.

Mazumdar, Dipak. 1995. 'Wage differences by size of enterprise in African manufacturing'. *RPED Discussion Papers. Africa Technical Department,* World Bank, Washington DC.

Sethuraman S.V. (1981), *The Urban Informal Sector in Developing Countries: Employment , Poverty and Environment*, ILO, Geneva

Tabatabai, 1988, "Agriculture decline and access to food in Ghana', *International Labor Review Vol. 127, No 6, pp. 703-734.*

Teal, Francis. 1994, *Report on the RPED Survey in Ghana*, processed, World Bank, Washington DC.

Teal, Francis. 1996. 'The size and sources of economic rents in a developing country manufacturing labor market'. *Economic Journal*, 106, 437, 963-976.

Turnham D, B Salome and A Schwartz (eds) 1989, *The Informal Sector Revisited*, Development Centre Seminar Series, OECD Development Centre

World Bank. 1989. *Ghana: Structural Adjustment for Growth.* Western Africa Department. Washington DC.

World Bank. 1993. *Ghana: 2000 (Accelerated Growth Strategy),* World Bank, Washington DC.

World Bank. 1994. *Ghana: Economic Memorandum,* World Bank, Washington DC.

World Bank. 1995a. *Ghana: Growth, Private Sector and Poverty Reduction.* Washington DC.

World Bank. 1995b. *Ghana: Poverty Past Present and Future.* Washington DC.

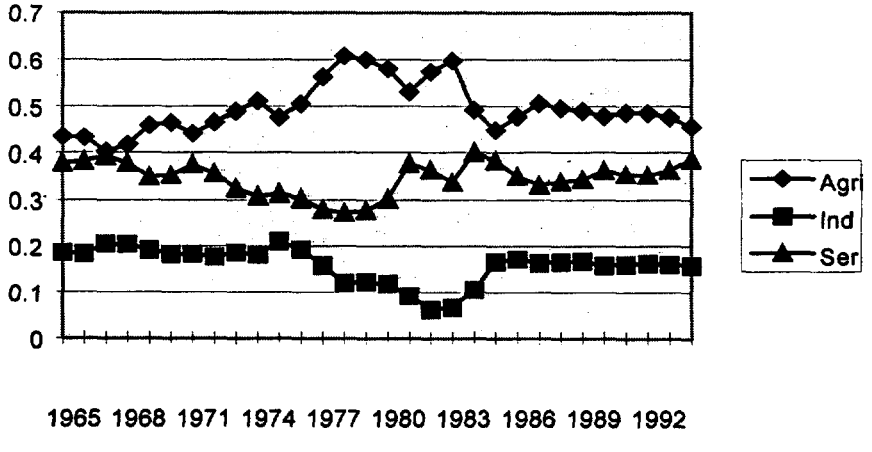
Younger, Stephen D. 1991a. 'Aid and the Dutch disease: Macro-economic management when everybody loves you'. *Cornell University Food and Nutrition Program,* Working Paper #17, Ithaca, NY.

Appendix 1

The Role of Labor in Ghana's Economic Growth: An Analysis of GDP Growth Rates Before and After Adjustment

The sectoral composition of Ghana has continued to shift towards service sector, despite the large share of agriculture. Agriculture accounts for 45 % of GDP and employs 55 % of the work force, mainly small landholders, while the employment in the service sector accounts for over 25 %, whereas it creates 40 % the real GDP. The share of industrial sector in real GDP and total employment is about 14%. Before 1970, the country had a relatively high living standards. But because of the poor economic policies between 1970 and 1982, Ghana suffered from large declines in trade volumes of 30 % in imports and 50 % in exports. Also domestic savings and investment fell from 12% of GDP to insignificant levels. Supported by substantial international assistance, Ghana has been implementing a steady economic rebuilding program, Economic Reform Program (ERP), since 1983 , including moves toward privatization and relaxation of government controls. Increase in the production of major export goods such as gold, timber and cocoa created a 5 % overall growth rate in 1994. The program improved agricultural income by releasing the price control for cocoa and the liberalization of the trading system for other cash crops. Real food prices (cereals and roots) have fallen gradually. One of the major improvements occurred in industry sector especially in mining by an annual increase in value added about 9 % since 1992. Overall, each sector had a significant jump in their growth rates.

Figure A!: Share of Sectors in GDP



The paper by Canagarajah and Govindan (1996) assesses the contributions of each of the major factors explaining Ghana's real GDP growth; technological change, increases in the endowments of labor and capital and the changes in domestic output prices. The paper presents a non-parametric decomposition of growth in order to

distinguish the price and factor productivity without empirical knowledge of the dual GDP function and examine the relation between the traded and service sectors, together with their overall effect on growth of the economy. The paper seeks to distinguish the effect of real price increase in each sector, the increase in the stock of factor of production and productivity improvements.

Table A1: Sectoral GDP growth rates for Ghana 1965-94

Average GDP Growth (%)			
	Agriculture	Industry	Service
1965-1970	4.7073	4.6223	-0.5084
1971-1982	-0.5278	-4.7334	1.0031
1983-1994	2.4959	7.1965	7.5272

The authors divide the Ghana economy is divided into 3 sectors: indexed A (agriculture), N (industry) and S (services), and two factors of production, indexed L (labor) and K (capital). Annual data on value added in each sector in current and constant prices for the three sectors are obtained from BESD (Bank Economic and Social Database) tables (World Bank, 1995) for the period 1965-1994. Labor force in millions of workers which is also obtained from BESD. The wage rates are gathered from Ghana Central Bank reports, Monthly Earning Tables. The missing values are interpolated. Capital stock is calculated from real investment values that are obtained from BESD. The cost of capital is interest rate. Discount rates, found in IMF data, are used in order to calculate cost of capital. The share of each of the three sectors in GDP is presented in Figure 1. It shows that agriculture sector always accounts for the major part of real GDP, although there is a decline in last fifteen years. The second biggest sector is service sector and its contribution has been on the increase since 1977. Industry sector share which is small compared to the other sectors, is more or less constant over the period .

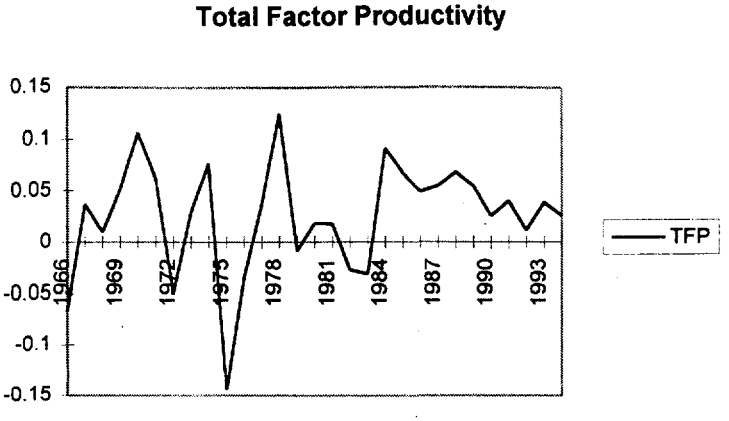
Table A2: Decomposing factor endowment and price effects, 1971-93

Year	Component of real GDP Growth (average percentage)						
		price effect			endowment effect		
	GDP Growth	Agriculture	Industry	Service	Labor	Capital	TFP Growth
1971-1975	-0.13	0.92	0.23	-0.41	1.62	2.75	-5.24
1976-1983	-0.85	0.98	-1.44	2.37	1.59	-0.36	-3.99
1971-1983	-0.57	0.95	-0.80	1.30	1.60	0.84	-4.47
1985-1988	5.09	1.77	0.82	-1.79	2.10	0.02	2.18
1989-1993	4.32	0.75	-0.15	-0.62	2.68	0.39	1.26
1985-1993	4.67	1.20	0.28	-1.14	2.42	0.23	1.67

The real GDP growth has been very volatile during the sample period. Although the country has a significant positive growth rate during the periods 1965-1970 and

1983- 1994, it becomes negative but not so significant during 1971-1982. There is 4.2 % growth in real terms for the last decade which is commendable.

Figure A2: Total Factor Productivity trends



The same kind of fluctuations are noticeable for the TFP (total factor productivity). During 1965 -1970 period, the real GDP growth is explained totally by productivity variable. In the second period, where there is negative economic growth, TFP is still positive but very small compared the other periods. But, if we examine the TFP movements for the overall period, it is very volatile at the beginning and becomes less volatile and positive later. Since TFP is calculated as residual, this value aggregates not only the productivity change but also any other factor that can effect the growth rate but not included to the calculations above. In earlier work attempts have been made to account for TFP growth through quality of labor, quality of capital and other measures of factor quality.

The effect of the factors of production are more steady. The employment impact in GDP growth has been quite big and always positive for the overall sample period. It is important to distinguish this effect from growth of employment. The calculated number shows us the contribution of labor growth to GDP growth. Otherwise, the unemployment problem increased during the sample period. The massive unemployment became one of the major problems since 1984, when labor has a significant positive effect on growth. Capital accumulation effect is always small and negative. But the magnitude of this negative effect is stable over time.

Looking at the domestic price effect, we see that it is rather small. The magnitude and the sign of the contribution of each sector as price effect are not steady over time. Agriculture price effect is always positive. For the industry sector, the contribution is positive between 1985-88 and negative between 1989-93. Whereas service sector as the non-traded good sector, has a negative price effect after 1985, although it had been positive between 1971-83.

These three periods representing three different economic policy, are very important in economic growth literature for Ghana. During the first period 1965-1970, a liberal economic policy was followed. Some of the state farms and some industries were privatized. The control on prices was eliminated. All these policies created an environment where both industry and agriculture sectors grew around 4.5 percent on average. But the sector price effects of these sectors on the economic growth are negative during this period. The prices in agriculture and industry are determined in world markets. The sector price effects reflects not only the growth of the sector in local economy, but also the economic events happening in the world markets. The real price of cocoa which is the main agricultural product in Ghana, declined significantly during this period. But the non-tradable service sector which had a negative growth rate, has a positive price effect on the real GDP growth. The main disparities between official and black market rate of exchange substantially diminished incentives for foreign labor migrants. Due to shortage of labor, the cost of labor increased significantly. The service sector prices reflected this increase on their own price. Because of the same reason, the factor effect of labor is not significant during this period at all. Economic fluctuations and political uncertainty, influenced negatively the real gross investment. Capital is not a positive factor for economic growth not only for the first period but through overall sample. So, between 1965-1970, TFP captures nearly all the real GDP growth.

Between 1971-1982, government changed all its liberal economic policy and switched to price control in the market. Under the poor economic policy, Ghana's economic growth fell to negative numbers. Agriculture and industry sectors had a negative growth rates where service sector managed to reach 1 percent economic growth. During this period, due to high inflation in the country, farmers stopped producing tradable goods and began to produce for family subsistence. This increased the market price of agricultural products. This created a substantial positive price effect of agriculture although the sector had a negative growth itself. The industry sector and service sector price effects are negative because of the poor economic situation in the country. Although all the growth rates are negative, TFP growth is calculated as 4.5 percent.

Since 1983, the government of Ghana has implemented a gradualist but sustained adjustment strategy under ERP. The reforms successfully turned the economy around. The real GDP growth has averaged 4.1 percent. They undertook several new policy incentives to increase private sector activity. All sectors has a substantial growth rates, especially industry and service sector. Service sector becomes the major share in GDP. Privatization of state industries and increase in exports caused positive price effect of industry sector. Agriculture has a positive price effect but less than the previous period because of the fluctuating world price of cocoa and other main agricultural products. The most interesting part of the calculations is the negative price effect of service sector although this period is the highest growth rate in the overall period. This can be due to increase in labor force therefore the labor cost decrease. Labor factor effect is positive and captures approximately half of the GDP growth. In the capital side, contrary to all government support to increase real investment, because of the uncertainty and

fluctuations, there is no change in the effect of capital stock on growth. The TFP growth effect reaches its peak point in the last period.

The authors conclude that the labor factor effect is one of the major component of Ghana's growth together with TFP in the overall period. All other level and rate effects are fluctuating. Ghana has a labor oriented economy, and it is no surprise that growth happens to be also labor oriented. The second major effect is total productivity effect (TFP) which is always positive throughout the whole sample. TFP is calculated as residual, so it includes all the effect that are not accounted in this analysis. The high TFP numbers give the feeling that other factors that are excluded in this calculation might be important in explaining Ghana's growth trend. This should be the topic of future investigation in understanding Ghana's growth.

Appendix 2

Growth and Poverty in Ghana: Some Simulation Results

The last poverty profile for Ghana relates to 1992 and since then the economy has undergone tremedous changes and it is pertinent that we understand the implications of Ghana's economic growth performence and projections on the future state of poverty and welfare. Canagarajah and Thomas (1997b) precisely do this using as their starting point the poverty rates derived using Ghana Living Standards Survey 1992. The headcount is 31.44 percent with a mean per capita expenditure of 215,080 cedis. They present growth-poverty simulations under *four* alternate scenarios based on 1992 poverty figures. The simulations are assumed to be *distribution-neutral growth* scenarios i.e. per-capita expenditures of individuals in all sectors (agri/Non-agri), location (rural/urban) and locality (Accra, urban and rural areas) grow at the same rate. However, it is worth mentioning that if we allow growth to be biased between regions/locations/sectors then the per-capita expenditure growth rates would be lower, and it would result in an adverse impact on the poverty estimates. As seen in the Table 1 below, the Gini Index of inequality remains unchanged overtime in all the three scenarios because growth is distribution-neutral. We use per capita GDP, sectoral and private consumption growth given by the country economist in the 1997 Country Assistance Strategy (CAS) projections as a proxy for per capita expenditure/consumption growth in the poverty analysis.

Table 1: Ghana: Growth and Poverty Simulations, 1992-2000

Year/ Growth Scenario	*Total Per-capita expenditure ('000 Cedis)*	*Headcount (%)*	*Depth (%)*	*Severity (%)*	*Gini Coefficient*	*Size of poor population (millions)*
Scenario 1: Using per capita GDP growth rates						
1992	215	31.44	8.06	2.97	0.338	4.96
1995	226	28.03	6.97	2.49	0.338	4.81
2000	248	22.62	5.15	1.75	0.338	4.49
Scenario 2: Using per capita private consumption growth rates						
1992	215	31.44	8.06	2.97	0.338	4.96
1995	216	30.92	7.91	2.90	0.338	5.31
2000	235	25.81	6.21	2.18	0.338	5.13

Source: GLSS 3, Ghana CAS (1997) Annex A5, and World Bank staff estimates.

Scenario 1: Real per capita GDP is assumed to grow according to the optimistic World Bank (CAS) projections. As a result, per capita expenditure grows at a rate of 1.80 percent p.a. between 1992-2000. In this case, the headcount measure will decline from 31.4 percent in 1992 to 22.62 percent in 2000. However, the size of the poor population will decrease from 4.96 million in 1992 to 4.49 million in year 2000.

Scenario 2: Real per-capita private consumption is assumed to grow according to the CAS projections. As a result, per capita expenditure grows at a rate of 1.12 percent p.a.

between 1992-2000. In this case, the headcount measure will decline from 31.4 percent in 1992 to 25.8 percent in 2000, and the size of the poor population will decrease slightly from 4.96 million in 1995 to 5.13 million in year 2000.

Both of these projections clearly show that despite the large decline in the headcount measure of poverty (P0), there is not a significant decline in the size of the poor population; In fact using the private consumption growth rates the size of poor population would increased from 4.9 in 1992 to 5.13 million in year 2000.

As a *second set* of scenarios we used the *sectoral* growth rates (agriculture, industry and services) instead of the overall GDP growth rates. The sectoral growth rates are applied to households on the basis of the sectoral-employment status of the head of the household (derived from the GLSS 3 household surveys). For our simulations, we used the actual sectoral growth rates for the three sectors as given in the CAS projections (Annex C1). In the first scenario we used the overall population growth rate of 3.0 percent , while in the second scenario we used an urban population growth rate of 4.2 percent p.a. and a rural population growth of 2.4 percent p.a. (These data are obtained from Live Data Base (LDB) and give the same overall population growth rate of 3 percent p.a.). The results are shown in Table 2 below:

Table 2: Ghana: Growth and Poverty Simulations, 1992-2000

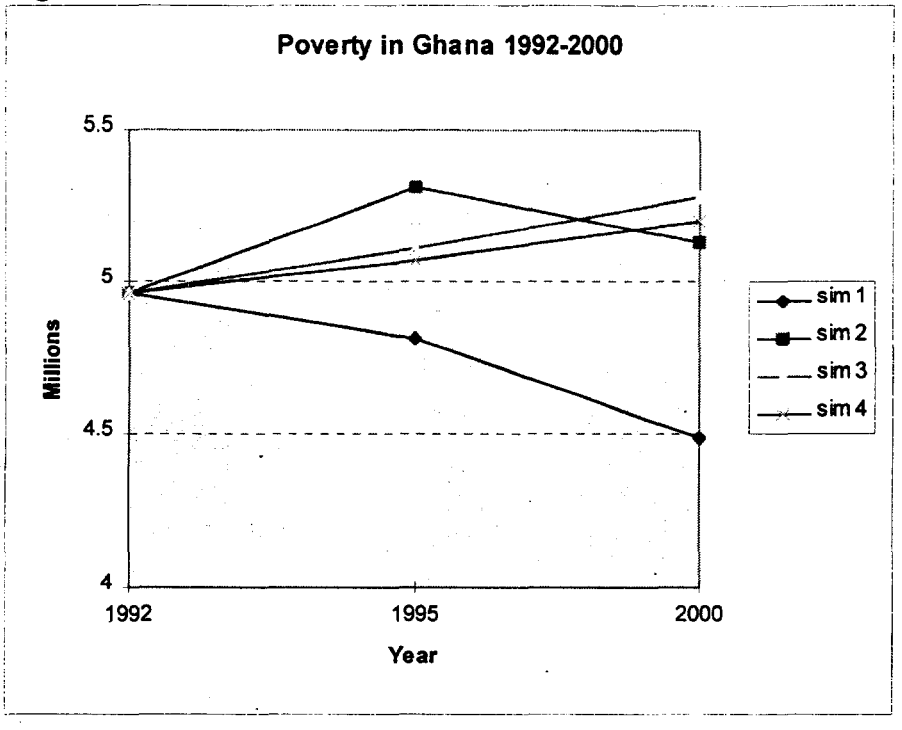
Year/ Growth Scenario	*Total Per-capita expenditure ('000 Cedis)*	*Headcount (%)*	*Depth (%)*	*Severity (%)*	*Gini Coefficient*	*Size of poor population (millions)*
Scenario 3: Different sectoral growth rates; population growth rate=3.0% p.a.						
1992	215	31.44	8.06	2.97	0.338	4.96
1995	222	29.65	7.61	2.78	0.341	5.11
2000	240	26.42	6.57	2.35	0.349	5.28
Scenario 4: Different sectoral growth rates; population growth rate, urban=4.2% rural=2.4%						
1992	215	31.44	8.06	2.97	0.338	4.96
1995	222	29.42	7.52	2.74	0.341	5.07
2000	240	25.93	6.36	2.26	0.346	5.20

Source: GLSS 3, Ghana CAS (1997) Annex C1 and World Bank staff estimates.

Scenario 3: Real GDP is assumed to grow differently in the three sectors according to the sectoral growth projctions contained in the CAS. Overall population is assumed to grow at 3.0 percent p.a., as a result, per capita expenditure grows at a rate of 1.38 percent p.a. In this case the headcount measure will decline from 31.4 percent in 1992 to 26.42 percent in 2000. However, the size of the poor population will increase from 4.96 million in 1992 to 5.28 million in 2000. Since different sectoral growth rates were assumed this scenario shows the adverse impact on income distribution through worsening Gini coefficient.

Scenario 4: Real GDP is assumed to grow differently in the three sectors according to the CAS projections. Urban population grows at 4.2 percent p.a. while the rural population grows at 2.4 percent. As a result, the overall per capita expenditure grows at around 1.38 percent p.a. In this case the Headcount measure will decline from 31.4 percent in 1992 to 25.9 percent in 2000. However, the size of the poor population will increase from 4.96 million in 1992 to 5.20 million in 2000. Like the previous scenario, the different sectoral growth rates assumed in this scenario shows the adverse impact on income distribution through worsening Gini coefficient.

Figure A1: Number of Poor in Ghana under alternative scenarios: 1992-2000



These simulations show that the low average growth rate in agriculture is not enough to make a dent on poverty. The figure above shows that the four simulations do not make a significant difference in the number of poor people in Ghana; the number of poor will remain around 5 million. Even though the headcount measure of poverty will decline during this period, the incidence of poverty among the people engaged in agriculture will remain almost unchanged, while there is significant decrease in the incidence of poverty in all other socio-economic groups (Table 3). However, the size of the poor population will increase mainly due to the increase in population. The different sectoral growth rates assumed in scenarios 3 and 4 clearly show that income distribution is likely to deteriorate. All these indicate that agriculture growth is fundamental to have a significant decline in poverty, because (i) agriculture has a much larger share in the total GDP (45 percent) than industry or services sector, and (ii) most of the poor are engaged in agriculture activities. Until significant gains are made by the majority of the poor in rural agrarian sector it is hard to imagine a measurable impact of poverty reduction in Ghana.

Table 3: Poverty by Socio-Economic groups, using the sectoral growth rates.

Socio-economic Group	Headcount Index		
	1992	1995	2000
Public-formal	21.72	19.42	15.11
Private-formal	16.44	15.56	12.80
Private-informal	27.97	22.83	20.10
Self-emp-Agriculture	38.82	38.63	36.87
Self-emp-Industry	26.55	22.48	17.51
Locality			
Accra	22.97	19.83	14.71
Other Urban	27.70	24.65	19.75
Rural	33.89	32.72	30.34
Ghana	31.45	29.65	26.42

Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
WPS1828	The Determinants of Banking Crises: Evidence from Developed and Developing Countries	Asli Demirgüç-Kunt Enrica Detragiache	September 1997	P. Sintim-Aboagye 38526
WPS1829	Economic Reform and progress in Latin America and the Caribbean	Norman Loayza Luisa Palacios	September 1997	E. Khine 37471
WPS1830	Private Ownership and Corporate Performance: Some Lessons from Transition Economies	Roman Frydman Cheryl W. Gray Marek Hessel Andrzej Rapaczynski	September 1997	B. Moore 38526
WPS1831	How Trade Patterns and Technology Flows Affect Productivity Growth	Wolfgang Keller	September 1997	J. Ngaine 37947
WPS1832	Pension Reform in Bolivia: Innovative Solutions to Common Problems	Hermann von Gersdorff	September 1997	C. Pavlak 82099
WPS1833	Cost Recovery and Pricing of Payment Services	David B. Humphrey Robert H. Keppler Fernando Montes-Negret	October 1997	T. Ishibe 38968
WPS1834	The Comparative Advantage of Government: A Review	Pedro Belli	October 1997	L. Schunk 31779
WPS1835	Cost-Benefit Analysis of the Global Dracunculiasis Eradication Campaign	Aehyung Kim Ajay Tandon Ernesto Ruiz-Tiben	October 1997	A. Kim 35029
WPS1836	Health and Labor Productivity: The Economic Impact of Onchocercal Skin Disease	Aehyung Kim Ajay Tandon Asrat Hairu and Others	October 1997	A. Kim 35029
WPS1837	How Estonia's Economic Transition Affected Employment and Wages (1989–95)	Rivo Noorkoiv Peter F. Orazem Allan Puur Milan Vodopivec	October 1997	S. Fallon 38009
WPS1838	The Limits and Merits of Participation	Paulo Vieira da Cunha Maria Valeria Junho Pena	October 1997	E. Thomas 31019
WPS1839	The Effects of Financial Liberalization and New Bank Entry on Market Structure and Competition in Turkey	Cevdet Denizer	November 1997	E. Khine 37471
WPS1840	Efficient Public Sector Downsizing	Martin Rama	November 1997	S. Fallon 38009
WPS1841	Patterns of Metropolitan Development: What Have We Learned?	Gregory K. Ingram	November 1997	J. Ponchamni 31052

Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
WPS1842	Motorization and the Provision of Roads in Countries and Cities	Gregory K. Ingram Zhi Liu	November 1997	J. Ponchamni 31052
WPS1843	Externalities and Bailouts: Hard and Soft Budget Constraints in Intergovernmental Fiscal Relations	David E. Wildasin	November 1997	C. Bernardo 37699
WPS1844	Child Labor and Schooling in Ghana	Sudharshan Canagarajah Harold Coulombe	November 1	B. Casely-Hayford 34672